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ABSTRACT

To discuss a number of major issues related to policies for the future development of higher education systems, the Organisation for Economic Cooperation and Development (OECD) organized a Conference on Future Structures of Post-Secondary Education, which took place in Paris in June 1973. High officials responsible for education policy in OECD member countries, including a number of ministers, attended the Conference together with teachers, administrators and participants from trade union and professional organizations. The central concern of the Conference was to examine the advent of mass higher education in its main patterns and characteristics and to identify alternative policy measures for facilitating the overall structural transformation of the system toward meeting its new objectives in the context of social and economic development. The present volume contains a series of four background studies relating to some of the major themes of the Conference. They are: Quantitative Trends in Post-Secondary Education and Admission Policies in Post-Secondary Education, both by Jean-Pierre Pellegrin; New Relations Between Post-Secondary Education and Employment, by Eric Esnault and Jean Le Pas; and The Cost and Finance of Post-Secondary Education, by Olav Magnussen. (Author/PG)

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CONFERENCE
ON FUTURE STRUCTURES
OF POST-SECONDARY EDUCATION

PARIS 26th-29th JUNE 1973

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TOWARDS MASS HIGHER EDUCATION

ISSUES AND DILEMMAS

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT PARIS 1974

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The Organisation for Economic Co-operation and Development (OECD) was set up under a Convention signed in Paris on 14th December, 1960, which provides that the OECD shall promote policies designed :

- *to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;*
- *to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development;*
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FOREWORD

Policies for higher education are under active consideration in most OECD countries. A major issue in such policies in the seventies will be the setting up of structures adapted to a stage of development which has either been or is at the point of being reached in most Member countries, that of the transition to mass higher education.

To discuss a number of major issues related to policies for the future development of higher education systems, the OECD organised, in the framework of the programme of work of its Education Committee, a Conference on Future Structures of Post-Secondary Education, which took place in Paris in June, 1973. High officials responsible for education policy in OECD Member countries, including a number of ministers, attended the Conference together with teachers, administrators and participants from trade union and professional organisations.

The central concern of the Conference was to examine the advent of mass higher education in its main patterns and characteristics and to identify alternative policy measures for facilitating the overall structural transformation of the system towards meeting its new objectives in the context of social and economic development.

A publication, issued under the title Policies for Higher Education, presents the General Report of the Conference. The present volume Towards Mass Higher Education: Trends, Issues and Dilemmas contains a series of four background studies relating to some of the major themes of the Conference. A third volume: Structure of Studies and Place of Research in Mass Higher Education completes the series of Conference publications.

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I

QUANTITATIVE TRENDS IN POST-SECONDARY EDUCATION

1960-1970

by

Jean-Pierre Pellegrin
OECD Secretariat

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SYMBOLS USED

-- No corresponding data.
.. Data not available.

INTRODUCTION

This report presents the statistical data, which has been updated, and the analysis published by the Secretariat under the title Development of Higher Education 1950-1967: Statistical Survey and Analytical Report, OECD, Paris, 1970, together with an overall analysis of enrolment trends in post-secondary education during the sixties.

All the reservations formulated in the above mentioned report concerning the limits of comparability of national data remain valid; these data, taken from the statistical publications of Member countries, are presented according to the OECD classification of educational systems (1). The validity of the international comparisons is to a great extent underwritten by the care with which the "conversion keys" were originally set up by the Secretariat and the national authorities.

There were several difficulties in updating data for the period 1950-1967, and in extending the time series to show recent trends. These difficulties had their origin in the many changes introduced into administrative organisation or into the structure of higher education since 1967. The creation of new fields of study or of new establishments, the setting-up of first-cycle pluridisciplinary education, the multiplication or recent development of non-traditional types of study (sandwich courses, part-time courses, multimedia of the "Open University" type, etc.) tend to modify the traditional divisions between long and short-cycle education and fields and systems of study and make them difficult to identify. This diversification entails some "destructuring", which means it is not easy to calculate enrolments or to interpret the quantitative trends.

In the first part of this report tendencies in enrolment trends in higher education, the factors in such trends and the changes shown in the distribution and in the composition of the student body will be described. In the second part the statistical aspects of access to higher education (and in particular the effect of trends in the numbers of secondary school graduates) and of educational performance will be presented. Lastly the enrolment trends expected during the seventies in the Member countries will be considered.

I. THE EXPANSION OF POST-SECONDARY EDUCATION (1960-1970)

A. Overall Trends

A Secretariat report (2) draws attention to the vast growth in post-secondary enrolments between 1960 and 1965 in all Member countries. This expansion continued between 1965 and 1970 at a slightly slower rate (7.2 per cent as against 9.1 per cent for 1960-65) but still remains very high, as is shown in Tables 1 and 2.

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(1) Classification of Education Systems in OECD Member Countries, OECD, Paris, 1972.

(2) Development of Higher Education 1950-1967: Analytical Report, OECD, Paris, 1971.

The rapidity of this growth, which began in the middle of the fifties, and its extension to all Member countries, are particularly striking facts which can be seen from Table A in Annex I. If reference is made only to the decade 1960-1970, it can be seen that in 18 of the 24 countries considered the number of students has more than doubled and has tripled in three of them (France, Greece and Sweden). It is thus possible to appreciate the volume of the demand satisfied, the extent of the intake capacity required - though the number of students cannot be identified with the number of places - and the multiple effects that numerical pressure can have on the structures of post-secondary education.

The growth rates of individual countries in this overall expansion have varied considerably, and reasons for this will be given later. With the exception of a few countries (Finland, United Kingdom, Japan) where the increase has been fairly regular (8-10 per cent per annum), most of the countries experienced a phase of 3 to 5 years of particularly rapid growth (10-15 per cent per annum). This phase usually occurred about 1962-67, and corresponds to the post-war increase in the birth rate. In some cases (Germany, Austria, Yugoslavia), it occurred before 1960, or more rarely (Italy, Canada), towards the end of the sixties.

Table 1

Growth in total higher education enrolments in all OECD Member countries

(in millions)

	1950	1960	1965	1970
University-type education *	3.28	5.86	7.99	11.03
Non-university-type education *	0.69	1.21	2.02	3.14
Total higher education	4.06	6.63	10.33	14.47

* Excluding Austria, Belgium, Iceland and Switzerland.

Sources: See Annex I, Tables A, B and C.

Table 2

Average annual growth rates of enrolments in higher education

(in percentages)

	1950-60	1960-70	1960-65	1965-70
University-type education	4.8	7.7	8.7	6.7
Non-university-type education	5.8	10.0	9.2	10.7
Total higher education	5.0	8.1	9.1	7.2

Sources: See Annex I, Tables A, B and C.

Table 3 shows that in half the Member countries the increase in enrolments was slower after 1965 than during the five preceding years; in a quarter of the countries the opposite was true, and in the others the situation remained constant. At this stage of a very global description, it would be premature to see in this trend the beginning of "the end of expansion"; at most we may note a slight falling off following a phase of spectacular growth. The origin of this trend would be clarified if the impact of the demographic variables were to be measured and recent trends in admission flows analysed.

Comparative trends of university and non-university education

The distinction between these two types of post-secondary education, established in the classification of educational systems, is based on several specific criteria. It should be remembered that university education is defined as long education, lasting three or four years at least, for which a secondary school leaving certificate is required and which leads to a first degree which may, in turn, lead on to higher diplomas. Non-university type education, which has been the subject of a specific study by the Secretariat (1), is defined as relatively short education for which a secondary school leaving certificate is not always required and which leads to a diploma regarded as below first degree level. This distinction may become less clear cut in the future and there are many changes and projects which indicate a move towards the integration of these two educational sectors. However, this "binary" structure remains in force in most countries for the time being. It was even strengthened during the sixties since many Member countries decided to create new short-cycle establishments and to reform and develop appropriate types of non-university education, one of the major functions assigned to them being to meet growing demand and to reduce numerical pressure on the universities.

The comparative enrolment trends for each type of education given in Tables 1 and 2 would seem to show that for OECD countries as a whole this aim has been achieved: enrolment in non-university education has increased much more rapidly - 10 per cent per year as against 7.7 per cent in the university sector - and the rate has accelerated since 1965. A closer examination shows that this overall trend reflects only that of 3 non-European Member countries whose weight is obviously decisive, whereas the European Member countries, in fact, show the opposite trend. This may be seen in Table 4.

(1) Short-Cycle Higher Education: A Search for Identity, OECD, Paris, 1973.

Table 3

Growth rate of enrolments in higher education

	1950-60	1960-70	1960-65	1965-70
Australia	5.8	11.1	13.2	9.0
Austria	5.6	4.9	5.2	4.5
Belgium	5.6	9.3	10.1	8.7
Canada	5.5	10.6 (2)	10.5	10.8 (3)
Denmark	5.3	9.0	10.4	7.7
Finland	5.2	8.6	10.7	6.7
France	3.3	13.2 (2)	15.5	10.3 (3)
Germany	7.9 (6)	4.7 (4)	3.3 (5)	6.2
Greece	7.1	12.0 (2)	17.0	6.1 (3)
Iceland	2.9	5.8	6.6	4.9
Ireland	2.3	6.5	8.1	4.9
Italy	1.7	9.6	8.4	10.3
Japan	11.5	9.0	8.9	9.1
Luxembourg	5.3	1.8	6.9	-3.0
Netherlands	5.6	7.7	6.9	8.5
Norway	5.0	8.5	10.6	6.6
Portugal	5.3	8.1	7.5	8.5
Spain	5.0	6.6	8.1	5.1
Sweden	5.8	11.8	11.7	11.8
Switzerland	5.0	4.6 (1)	3.2	7.1 (7)
Turkey	9.0	9.1	9.5	8.6
United Kingdom	-0.3	8.3 (2)	8.5	8.0 (3)
United States	4.6	7.7	9.0	6.5
Yugoslavia	8.8	6.4	5.6	7.1
Average	5.4	8.1	9.0	7.3

(1) 1960-68.
(2) 1960-69.
(3) 1965-69.
(4) 1961-70.
(5) 1961-65.
(6) 1950-61.
(7) 1965-68.

Source: See Annex I, Table A.

Table 4

Comparative growth in university and non-university enrolments

	1960-65		1965-70		1960-70	
	European countries	Non-European countries*	European countries	Non-European countries*	European countries	Non-European countries*
University education	8.9	8.6	8.5	6.1	8.7	7.3
Non-university education	9.5	11.9	5.6	11.5	7.3	11.7

* Excluding Australia.

Source: See Annex I, Tables B and C.

Admittedly, a country by country study would show that the slower growth of the non-university sector is very marked in only two-thirds of the European countries where the universities still have a stronger attraction for students. The reason for this trend and for the partial failure of policies to develop short-cycle education in most European countries will be considered in Part II of this report.

Overall trends: other tendencies

New short-cycle higher education establishments were created during the sixties, often despite the overall trend noted previously, and already occupy an important place within this sector of education (see Table 5).

Table 5

Enrolments in some new short-cycle higher education establishments

Country	Establishment	Date of creation	Enrolments 1970/71	Enrolments as a percentage of total non-university education (1970)
France	I.U.T.	1966	24,380	25
Norway	District Colleges	1969/70	400	4
United Kingdom	Polytechnics	1969/70	91,080	46
Canada:				
Ontario	C.A.A.T.	1967/68	24,421	100
Quebec	C.E.G.E.P.	1967/68	75,000	100
Yugoslavia	Više Škole	1960	81,074	100

Source: See Annex II.

Third-cycle (post-graduate) education has expanded more rapidly than the other cycles (see Table 6). This tendency was noted and analysed in a Secretariat paper (1) based on data prior to 1965. It will be seen that this trend continued up to 1970-71. It does not seem therefore (at least up to that date) that the fall in the demand for research workers - a demand which was one of the major growth factors at this level at the beginning of the sixties - has affected student preferences to continue their studies beyond the first university degree.

Table 6

Trend in the proportion of students in post-graduate education (as a percentage of total enrolments in university education)

	1960-61	1964-65	1970-71
Canada	5.5*	7.8	10.5
France	9.8*	10.7	10.9
Norway	23.0	19.0	25.6
United Kingdom	16.6	17.4	18.4
United States	9.9	10.4	14.3

* Full-time students 1959-60.

Sources: 1960-64 - Development of Higher Education - Analytical Report, op.cit.

1970-71 - See Annex II.

Different types of part-time higher education have shown rapid growth, which was particularly noticeable towards the end of the sixties. Although it is often difficult to get a statistical picture of the growth and relative position of these various forms of education, the following facts may be noted:

Part-time courses provided in higher educational establishments in some Member countries have had, in the universities at least, a tendency, in recent years, to develop more rapidly than full-time education (except in Yugoslavia); this tendency is all the more remarkable in that it reverses that which prevailed up to 1965 (see Table 7).

(1) "Post-Graduate Education: Structures and Policies", OECD document, Paris, 1972.

Table 7

Student enrolments in part-time courses
(as a percentage of total enrolments)

	1960	1965	1970
University education			
Canada	21.5	26.4	33.0
Ireland	9.6	8.3	10.8 (1971-72)
England and Wales	14.1	7.0	9.1
Yugoslavia	26.6	22.4	17.2 (1969-70)
Total higher education			
United States	31.2	29.3	31.0
England and Wales	37.8	30.4	29.3
Yugoslavia	32.6	34.1	28.6

Sources: 1960-65 - Development of Higher Education, op.cit.
1970 - See Annex II.

The very conception of part-time courses in some cases masks a very wide variety of forms of education which have evolved differently. In the United Kingdom, which is the country with the greatest variety of types of education at this level, the following changes in distribution can be seen between 1964 and 1970 (Advanced Further Education):

Forms of education	1964	1970
Full-time	20.1	28.9
Sandwich courses	8.5	15.5
Part-time	38.5	35.0
Evening classes	32.9	20.4
	100.0	100.0
	(138,460)	(197,271)

Source: Statistics of Education, Vol. 3, HMSO, London.

It is more difficult to assess the growth of the different types of education and training for adults at post-secondary level, the list of which is always incomplete. For example, some data are given in Table 8, but they cover only part of the enrolments in these "non-traditional" forms of education and are therefore not comparable.

B. Growth Factors in Post-Secondary Enrolments

If one accepts that the growth of student numbers is the result of the combined effect of demographic variations and a higher level of enrolment, it is interesting to identify the effect of each of these variables during the 1960's. A first approximation can be seen in the enrolment rates or ratios which are the usual indices for international comparisons.

Table 8

Adult education at post-secondary level

Country	Type of Education	Enrolments	
England and Wales	Adult education:		
	- in universities	1965:	137,420
		1970:	139,038
	- in other organisations (Workers Educational Association, etc.)	1965:	86,096
		1970:	110,098
	Open University	1972:	44,000
France	Different types of education at post-secondary level (levels I, II, III)	1968:	61,500
		1971:	132,000
	C.N.A.M. (Conservatoire National des Arts et Métiers)	1971:	21,900
Sweden	Courses for adults (external university education)	1968:	10,000

Sources: England and Wales: Statistics of Education, Vol. 6, HMSO, London.

France: "La formation professionnelle continue et la promotion sociale en France" ("Continuing vocational training and social advancement in France"), Notes et études documentaires, No. 3864, La Documentation française, Paris, 1972.

Sweden: Extern Universitetbilnig, SAMSUS Report, Stockholm, 1971.

Enrolment ratios (the ratio of students to the 20-24 age group) are very rough indicators since they do not take into account either the age distribution of the students or variations in the average length of study, but they are still used quite frequently for purposes of comparison. In 1970, these ratios varied from 12 to 23 per cent in European Member countries (apart from Turkey and Portugal), Australia and Japan, and amounted to 40 per cent in Canada and the United States. There has therefore been a very definite advance since 1960 when these percentages were between 6 and 11 per cent in Europe, and 30 per cent in the United States (see Table 9).

Approximate enrolment rates are given by the ratio of students to the population of the age group to which more than three-quarters of the students belong. This population varies from country to country. These rates take into account both the length of study and the age structure of the student population. Their trend since 1960 is shown in Table 9, and also in Figure 1 which plots the evolution of each of the two components of the ratio. In 1970, these rates were from 5 to 10 per cent in the developing Member countries and from 10 to 15 per cent in the other European countries, with the exception of Sweden where the rate (22.6 per cent) is now much closer to those of Canada and the United States (31 and 35 per cent). On the graph most of the countries are in the upper right quadrant which means that, globally, between 1960 and 1970, student enrolments increased together with the population of the age group, but much more rapidly. Austria and Germany are exceptions; the reduced size of the age group explains the small growth in the number of students (60 per cent). It will also be seen that the majority of the points are grouped together; the increase in student enrolments was roughly the same everywhere (100 to 150 per cent over these ten years) although the increase in the size of the age group varied considerably (from 3 to 60 per cent). Finally, it will be seen that the exceptionally rapid increase in enrolments in Sweden and France can be attributed in the latter case to a large increase in the age group.

A more exact calculation shows what part of the increase in enrolments is due to demographic changes, what part can be attributed to changes in enrolment at other levels and, finally, what is due to the combined effect of these two variables. After distributing this residual, the following results are obtained (Table 10):

- With the exception of the United States, the demographic variable accounted for less than 50 per cent of the total increase (and less than 30 per cent in two-thirds of the countries considered). In some cases its impact has been very slight (Portugal), almost negligible (Italy) or negative (Germany and Austria); in these last two countries the growth in the number of students may be said to have fallen by 27 per cent and 9 per cent as a result of the reduction in the size of the age group;
- The United States and Canada, where 60 per cent and 48 per cent of the increases are due to variations in the age groups, show that where the system of higher education is highly developed variations in demand are more sensitive to demographic changes;

Table 9

Enrolment rates and ratios in post-secondary education

	Enrolment ratio (as percentage of the population of the 20-24 age group)		Approximate enrolment rates			Age group considered
	1960	1970	1960	1965	1970	
Austria	7.5	12.4	4.5	6.4	10.5	19-24
Belgium	9.4	15.5	8.0	11.0	14.7	18-23
Denmark	10.5	18.7	7.7	11.6	13.8	19-25
Finland	9.0	14.5	7.4	10.3	12.2	19-24
France	9.1	19.8	7.8	12.5	15.1	18-23
Germany	6.5	12.7	5.4	7.2	10.9	20-25
Greece	3.9	11.8*	2.8	6.5	..	18-24
Ireland	8.2	12.6	7.3	8.0	..	18-22
Italy	7.0	16.3	5.5	8.7	12.1	19-25
Netherlands	13.3	19.1	9.5	10.6	14.0	18-24
Norway	10.2	15.7	8.6	10.9	13.3	19-24
Portugal	3.4	7.8	2.5	3.6	5.0	18-24
Spain	8.6	14.1	6.0	8.1	9.6	18-24
Sweden	10.3	22.6	10.3	13.6	22.6	20-24
Switzerland	6.5	8.3*	5.5	6.6	7.0	20-25
Turkey	2.9	5.2	2.3	3.2	3.9	18-23
United Kingdom	8.5	13.7	8.7	10.7	14.3	18-22
Yugoslavia	8.9	15.5	6.1	9.2	10.5	19-25
Australia	10.3	15.6	11.6	16.8	18.4*	17-20
Canada	24.2	39.1	19.3	27.3	30.7*	18-23
Japan	8.4	15.6	8.1	12.0	16.2	18-22
United States	31.5	42.6	25.9	31.4	35.1	18-23

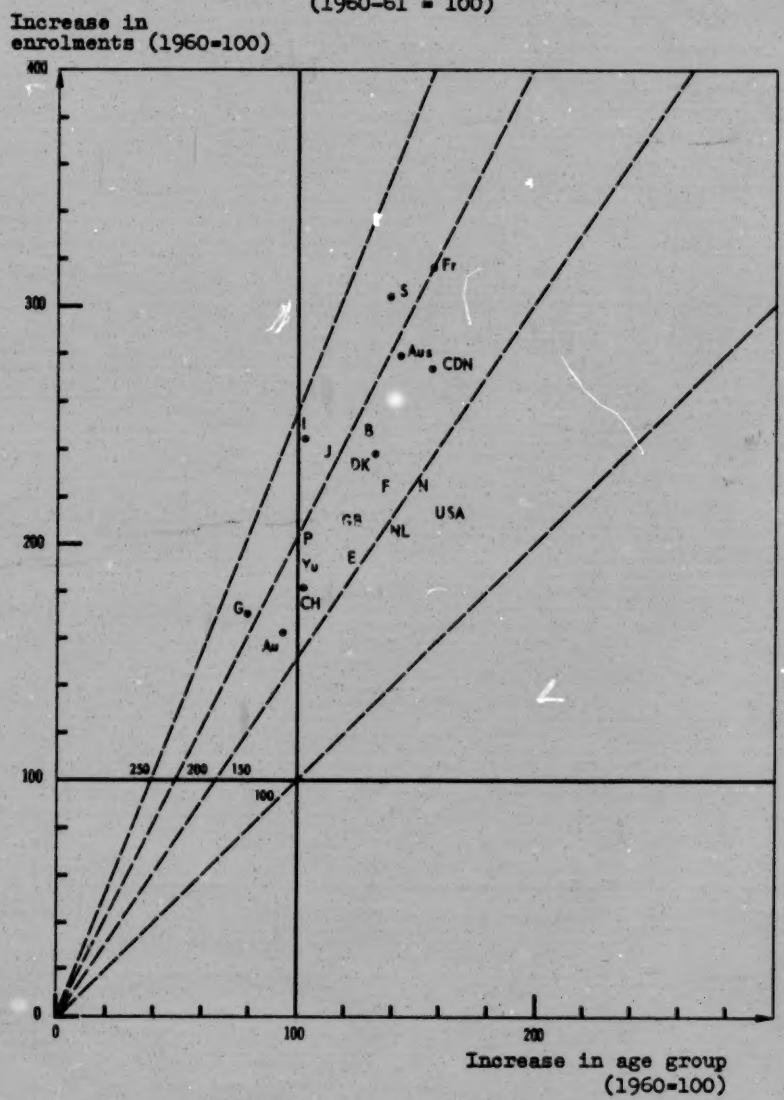
* 1969/70.

Sources: Enrolments - see Table A, Annex I.
Demographic data - see Annex III.

Figure 1

Increase in enrolments, age-group and enrolments ratio in higher education

(1960-61 = 100)



Sources: Enrolments - Table A, Annex I.
Demographic data - Annex III.

Table 10

Sources of change in the increase in enrolments in post-secondary education between 1960 and 1970

Percentages

	Cause - demographic changes	Changes in the enrolment ratio	Combined action of the two changes	After distribution of the combined effect	
				Demographic changes	Changes in the enrolment ratio
Austria	- 9.78	116.90	- 7.12	- 9.12	109.12
Belgium	23.50	57.13	19.37	29.14	70.86
Denmark	23.67	57.53	18.80	29.15	70.85
Finland	30.52	49.76	19.72	38.01	61.99
France	27.75	46.09	26.16	37.58	62.42
Germany	-36.92	174.25	-37.33	-26.88	126.88
Italy	2.04	95.15	2.81	2.09	97.91
Netherlands	38.10	43.62	18.28	46.62	53.38
Norway	37.29	42.51	20.20	46.72	53.23
Portugal	5.59	88.91	5.50	5.91	94.09
Spain	21.40	65.89	12.71	24.51	75.49
Sweden	18.78	58.70	22.52	24.23	75.77
Turkey	28.38	51.96	19.66	35.32	64.68
United Kingdom	22.30	62.81	14.89	26.20	73.80
Yugoslavia	10.53	82.03	7.44	11.37	88.63
Canada	37.66	39.98	22.36	48.50	51.50
United States	49.93	32.23	17.84	60.77	39.23

Sources: See Annex I, Table A, and Annex III.

- In spite of fairly strong variations in the effect of the demographic variable, it can be estimated that, in the 18 countries considered between 1960 and 1970, an average of 27 per cent of the expansion in student enrolments is attributable to demographic growth. If each of the five-year periods is taken separately, it is striking to see that this average proportion has not varied. The population in question, however, grew less rapidly after 1965 (2.07 per cent per year in 1965-70 as against 2.7 per cent on average in 1960-65). The slight slowing-down in the annual rate of growth in student enrolments after 1965 (7.5 per cent as against 9.1 per cent) can be only partially attributed to the slower population increase, two-thirds of this small relative decline being due to a slightly lower increase in the level of enrolment. On the hypothesis of constant demographic evolution, the average growth of higher education would have been approximately 8 per cent per year (1965-70) as against 9.1 per cent per year before 1965.

The extension of schooling accounts therefore on average for roughly three-quarters of the growth in higher education during the 1960's in the Member countries. In 1970 there were an additional 5.7 million enrolments compared to 1960 figures for all OECD countries considered together: in other terms this represents an increase of some 83 per cent. The average proportion of an age group continuing their studies at the post-secondary level has grown from some 8 per cent to roughly 14 per cent between the two dates. These are overall average figures and, as such, cover important differences between Member countries; nevertheless, they reflect a common trend characterised by great progress in the field of post-secondary schooling.

An analysis of the factors determining this growing demand, the nature of which has scarcely been examined, would go beyond the scope of this report but, in a very summary fashion, one may say that the expansion in educational participation has two complementary aspects:

- The first is internal to the education system: the expansion in secondary education (1) leads to an increase in the number of school leaving certificates (and in the percentage of the age group with the qualification required for admission to higher education) and therefore in potential demand. This has repercussions at post-secondary level in the form of an increase, which may or may not be proportional, in effective demand. This demand may possibly be constrained by the number of places available or by standards required and this may lead to exclusions or to changes in students' choice of field of study. All these elements in the system can be detected within the limits of the information available through flow movements: the secondary school leaving rate, transfer rate, admission rate, success rate and drop-out rate. Their measurement will be dealt with later on.

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(1) Secondary Education, OECD, Paris, 1970.

- The higher level of enrolment may also be analysed on the basis of its relationships to the socio-economic environment and may reflect: (i) changes in the choice of subjects by those who decide to undertake higher studies on the basis of a comparative estimate of the expected benefits and of the accountable value of the direct costs and opportunity costs of such studies (1); (ii) changes in the hopes and expectations in terms of cultural satisfaction, access to certain roles or status, etc., of specific groups; (iii) changes in collective preferences and consumer behaviour with regard to the "superior" service represented by post-secondary education, linked to income growth and therefore to the level of economic development.

A verification of each of these hypotheses would make it possible to identify the determinants of the demand for education and to shed light on the prospects for future expansion, but very little has been done on this subject. A recent study by the Secretariat (2) has supplied several elements of a reply to point (iii) above by analysing, with the aid of regression techniques, the relation between the enrolment rates for the 15-19 and 20-24 age groups, and the level of income measured by GNP per capita: the income elasticity in relation to the enrolment rate is 0.71 for the 15-19 age group, and 0.68 for the 20-24 group. This shows the very close link between variations in enrolment rates and income and between variations in enrolments in the two age groups, independently of the size of the age groups at a given income level. When the time factor is introduced one can see the fairly marked influence of this variable in the 20-24 age group which reflects - even at a stable income level - an upswing in the order of preferences in favour of higher education (1.2 per cent per year of the enrolment rate around 1965). The demand for education, like the demand for durable goods, increases therefore with the increase in income. Finally, contrary to what was seen for the 15-19 age group, where enrolment tends to level off at 80 per cent, there was no such tendency for the 20-24 age group at the income levels observed towards 1970.

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(1) In addition to the literature on the theory of human capital, see R. Campbell and B. Siegel: "The Demand for Higher Education in the United States 1919-1964", American Economic Review, 1967, p. 482;

H. Galper and R. Dunn: "A Short-Run Demand Function for Higher Education in the United States", Journal of Political Economy, 1969, p. 765;

A. Coraggine, D. Dugan, D.J. and M. Grabowski: "Determinants and Distributional Aspects of Enrollment in U.S. Higher Education", The Journal of Human Resources, 1972.

(2) "An exploration of the relationship between GNP per capita and school enrolment in age groups 15-19 and 20-24", OECD document, 1972 (mimeo.).

C. Composition of the Student Body

Characteristics and changes

The doubling, or even tripling, of enrolments in the higher education establishments of Member countries during the sixties was accompanied by a slow change in the composition of the student body. A brief description of these changes will be given with reference to criteria of sex, social origin, age and nationality. (1)

(a) Female participation. This has continued to increase in all countries but at a much slower rate after 1965 (Table 11), except in Germany and Austria where the trend was reversed. The differences between countries noted prior to 1965 have continued: in 1970, the average rate of the proportion of women university students with variations from 18 per cent in Japan to 47 per cent in Finland, was 32 per cent (26 per cent in 1960). The equalising of opportunity between the sexes is a very slow process which appears to depend on the particular dynamic of each country.

(b) Social origin of students. The trends discerned by a Secretariat study (2) analysing all the data up to 1966 have continued, and the conclusions still appear to be valid. More recent data exist for eight Member countries (Finland was not included in the study quoted) and have been regrouped in Table 12. They bring out the following facts:

- The proportions of students from less favoured social categories have increased (except in Norway and the United Kingdom). This increase is very clear in Germany (from 5.4 to 12.6 per cent), in France (from 4.6 to 12 per cent), in Sweden (from 13 to 22.6 per cent), in the Netherlands (from 8.5 to 14 per cent), but in all countries the group of young people originating from this class (that is 45 to 65 per cent of the total) remains very clearly under-represented.

- The percentage of students who are farmers' sons has slightly increased, in spite of a decrease of this socio-occupational group in the total active population. However, this group still remains under-represented.

- These increases have lowered the relative place of upper stratum students (except in Norway) or middle stratum students (except in Germany and the Netherlands) or both (Finland, France, Sweden).

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(1) Previous studies may be consulted for explanations of the differences between countries, in particular: Group Disparities in Educational Participation and Achievement, Conference on Policies for Educational Growth, Vol. IV, OECD, Paris, 1971 or Development of Higher Education, op.cit.

(2) Group Disparities in Educational Participation and Achievement, op.cit.

Table 11

Trends in female participation in university education

Percentages

	1960	1965	1970
Austria	25.9	25.4	27.0
Denmark	22.7	28.1	30.0
Finland	46.3	48.6	48.2
France	41.3	43.4	44.7
Germany	20.3	20.6	31.0
Greece	23.2	30.5	31.3
Italy	26.6	33.4	38.0
Netherlands	17.9	18.0	19.7
Norway	20.2	24.3	27.4
Portugal	30.5	38.8	45.0
Spain	19.9	21.3	25.2
Sweden	32.1	36.9	37.3
Switzerland	14.2	18.1	22.6
Turkey	23.8	25.1	23.3
United Kingdom	24.5	26.4	29.0
Yugoslavia	28.7	32.6	38.0
Canada	24.9	32.8	35.2
Japan	13.7	16.4	18.2
United States	38.0	39.0	41.0

Sources: For 1960 and 1965: Development of Higher Education, op.cit.
For 1970: See Annex II.

Table 12

Social origin of students

Percentages

		Socio-occupational category (1)					
		A	B	C	D	E	Others
England and Wales	1961	61.0	13.0	—	—	26.0	—
	1970	46.0	27.0	—	—	27.0	—
Finland	1965	32.1	29.3	17.3		19.9	1.4
	1970	27.3	20.3	23.0		21.3	8.1
France	1960	55.2	34.4	5.8	—	4.6	—
	1968	47.0	30.7	6.3	—	11.9	—
Germany	1961	34.2	29.0	3.6	14.7	5.4	—
	1970	26.2	35.7	4.2	14.3	12.6	—
Netherlands	1961	42.0	47.0		—	8.5	—
	1970	37.0	49.0		—	14.0	—
Norway	1964	33.6	11.1	12.0	—	23.9	—
	1969	37.6	11.0	7.5	—	19.5	—
Sweden	1950	55.0	39.0		—	6.0	—
	1960	48.0	39.0		—	13.0	—
	1968	40.0	37.4		—	22.6	—
Yugoslavia	1960	40.1		26.5	—	17.5	3.0
	1969	21.5	28.8	20.2	—	20.5	9.4

(1) Classification (except for Sweden):
A - upper stratum;
B - middle stratum;
C - independent agriculture;
D - other independent;
E - lower stratum.

See: Group Disparities in Educational Participation and Achievement, op.cit., Annex A.2.

Source: See Annex IV.

- The parity ratios (1) of upper stratum categories are much higher than 1, in spite of a sometimes very clear decline. The relative chances for upper stratum and lower stratum youth to study in a university evolved as follows.

Table 13

Relative chances of upper stratum and lower stratum youth of studying in a university

England and Wales	1961	8:1
	1970	5:1
France	1959	84:1
	1964	30:1
	1968	28:1
Germany	1961	58:1
	1964	48:1
	1970	12:1
Netherlands	1961	56:1
	1964	45:1
	1970	26:1
Sweden*	1960	9:1
	1968	5:1
Yugoslavia	1960	6:1
	1965	4:1
	1969	3.5:1

* The classification used is not comparable to that used for the other cases.

Sources: Years prior to 1966: Group Disparities, ibid.
Years subsequent to 1966: See Table 12 and Annex IV.

All these data reveal that the relative advantages of the upper stratum with regard to access to university education have diminished everywhere. This process is still fairly slow, though there are some exceptions; data are too few to enable us to note any acceleration in democratisation towards the end of the sixties. There is a certain trend towards this in Germany, Sweden and the Netherlands, but the opposite is true of England, France, Norway and Yugoslavia. Finally, it may be noted in the first three cases that, in spite of a substantial increase in the chances of lower stratum youth to have access to the university, the disparities remain very marked and equality is far from being attained.

These data refer solely to university education (except for Yugoslavia). If they are compared - and this is possible in only a few cases - with data on the social origin of students in short-cycle higher education, the social disparities are seen to be less marked in this type of education and the percentage of workers' sons are clearly higher than in the universities (see Table 14).

(1) The parity ratio is the ratio of the percentage of students from a socio-economic category to the percentage of the active population belonging to the same category.

Table 14

Percentages of lower stratum students

		Universities	Short-cycle higher education
England and Wales	1961	26.0	37.9 (other than universities)
	1970	27.0	36.0 (5 Polytechnics)
France	1968	11.9	24.2 (I.U.T.)
United States	1966	11.0	18.0 (two-year establishments)
Yugoslavia	1970	17.0	22.0 (Više Škole)
Canada:	1968		
Ontario		26.7	40.0 (C.A.A.T.)
Quebec		24.9	38.3 (C.E.G.E.P.)

Source: See Annex IV.

Short-cycle higher education thus tends to facilitate access to higher education for students who, because of their social origin, were previously excluded. From this it seems that the claim of equalising opportunity of access, often made for short-cycle education, is justified. It will be noted, however, that these higher percentages do not preclude the existence of what are still quite marked disparities, and that the orientation of students of modest origin towards this type of education will tend to slow down the democratisation of university education and could even in some cases create a sort of social polarisation which, through differential choices by social origin, would contribute to a new form of segregation.

(c) Foreign students. The proportions of foreign students (in relation to total students) considerably declined during the sixties (Table 15). This tendency might be interpreted as a slowing down of the international mobility of students, although this does not seem to have affected the post-graduate or third-cycle level in which most of the foreign students are enrolled. Their admission to the first cycle has certainly been affected by stricter admission procedures (1), in particular in countries where more liberal entrance conditions attracted students from countries where a numerus clausus had been introduced.

(1) "Access to Higher Education and the Numerus Clausus", Council of Europe, Strasbourg, CCC/ESR(72)23.

Table 15

Proportions of foreign students

	1960	1965	1970
Austria	26.9	19.4	16.1
Belgium	6.8	9.7	..
France	9.6	7.2 (13.7)	5.7 (12.7)
Germany	9.6	8.9	5.7
Ireland	19.3	17.4	..
Sweden	4.2	6.6	..
Switzerland	32.8	26.3	22.5
United Kingdom	10.7	9.3 (25.0)	7.9 (25.4)
Canada	6.4	5.5	7.3 (32.4)
United States	1.5	1.7 (8.2)	1.7

The figures in brackets refer to post-graduate or third-cycle level of education.

Sources: For 1960 and 1965 : Development of Higher Education, op.cit.
For 1970 : See Annex II.

(d) Breakdown of students according to age. The age structure of the student body changed considerably during the sixties. In 8 of the 11 countries for which data are available, an increase in the average age of university students has been noted during this period. (In Germany, the United Kingdom, and particularly Yugoslavia, the opposite trend has been noted.) This tendency is due not only to changes in the demographic structure but also to the raising of the average age of admission to post-secondary education and possibly, but data do not exist on this point, to the extension of the average length of studies. For example, the average age of admission rose from 19.6 to 20.6 in Denmark and from 19.5 to 19.9 in the Netherlands between 1965 and 1970. It is difficult, however, to know whether this tendency corresponds to a raising of the average age for leaving secondary education, or to a longer average period between the time of leaving secondary education and entering the university.

Using these criteria of sex, social origin, nationality and age, it is possible to illustrate certain changes which occurred in the student population during the sixties, when enrolments more than doubled (an average increase of 116 per cent). From this point of view, the criteria are of unequal value. Although the relative fall in the number of foreigners has only limited significance, the slight aging of the population observed is important; it has been noted that there was a slow increase in the proportion of female students (from 26 to 32 per cent) and also in the relative place occupied by lower stratum youth who, in 1970, represented from 10 to 20 per cent of students as compared with approximately 5 to 13 per cent around 1960. These changes are not negligible but apparently occur slowly enough for their effects to be limited. On the basis of these average proportions, the share of overall expansion which may be attributed to the growing participation of women can be estimated at approximately 10 per cent, and that of the progress made in the democratisation of higher education at approximately 7 per cent.

Any relationship between the rates of expansion and the changes in the composition of the student population is not evident; a few facts may be mentioned by way of example:

- The small expansion experienced in some countries for demographic reasons (Germany, Yugoslavia, Austria) at the beginning of the sixties corresponds to a quasi-stability in the proportion of female students and in the percentages of lower stratum students. But, inversely, in the countries with a very heavy expansion (France, Sweden) these proportions have not increased more rapidly than the average.

- A recent study (1) showing the changes in the composition of the student body in the United States between two consecutive years, 1970 and 1971, and marked by a slight expansion (4.1 per cent for enrolments, 1.5 per cent for new entrants) brings out:

  (i) the very rapid advance in the number of students coming from minority groups: 17 per cent for blacks, 19 per cent for students whose mother tongue is Spanish (38 and 31 per cent at the post-graduate level);
  (ii) the more rapid increase in female enrolments (4.7 per cent as against 0.7 per cent for men);
  (iii) the absence of changes in social origin, and in the average level of aptitude of new students;
  (iv) a tendency to more marked interruptions of studies, either before admission to higher education or during the course of study.

We may assume that all these changes in the composition of the student body tend to modify the structure of student choice and expectations, the nature of their relations with institutions, teachers, learning and so on, but owing to the lack of extensive information, it is not possible to assess all the consequences (2).

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(1) R.E. Peterson: American College and University Enrolment Trends in 1971, Carnegie Commission on Higher Education, McGraw-Hill, New York, 1973.

(2) Various studies which concern specific categories of students might be consulted on this point, for example:

- "Students in University Institutes of Technology in France", OECD document, Paris, 1973.
- Social Characteristics and Motivations of Students in Non-University Post-Secondary Educational Institutions in the Province of Alberta, Alberta Colleges Commission, May 1972.
- A.W. Astin and R.J. Panos, The Educational and Vocational Development of College Students, American Council on Education, Washington, 1969.

II. ADMISSION AND PERFORMANCE IN POST-SECONDARY EDUCATION

Admission to higher education is the result of a process which operates during secondary education and of the conditions governing transfer from this level to the post-secondary level. This is analysed in Study II of the present publication. Here only the development and origin of flows of new students will be examined.

A. Increase in the Flow of New Entrants and the Measurement of Admission Rates to Post-Secondary Education

Trends in the number of new students are given in Table 16. Over the 10-year period, the size of the increase is roughly the same as that of enrolments, but it falls off quite clearly towards the end of the sixties, as shown below.

Average annual growth rate for new entrants
(averages calculated from data referring to 17 countries)

	1960-70	1960-65	1965-70	1968-70*
Total enrolments	7.8	9.2	7.9	7.5
New entrants	7.8	10.1	6.3	4.1

* Average data referring to 13 countries.

In 14 of the 17 countries considered, the increase in new entrants was less than that of total enrolments in 1965-70. During the last three years (1968-1970), this trend applied to all the countries for which statistics were available (with the exception of Italy); in only two countries out of the 13 considered, was there a decrease in the absolute number of new entrants, namely Sweden and Finland.

This trend had primarily demographic causes: the numbers eligible for admission to post-secondary education which, between 1960 and 1965, had increased on average by 3.0 per cent per year increased by only 0.5 per cent between 1965 and 1970, and even fell in half the countries; this fall would on average, for the 17 countries considered, explain nearly two-thirds of the slower increase in the numbers of new students.

The rate of admission to higher education, that is the average proportion of an age group entering post-secondary education, is a useful indicator for measuring average chances of admission and one which can be used fairly easily for international comparisons. These rates, which were available for two-thirds of the countries are shown in Table 17. It will be seen (i) that every young American has almost a fifty-fifty chance of being admitted to higher education (1), (47 per cent), as against slightly more than one chance in three (35 per cent) in 1960; (ii) that in the more developed European Member countries the average rates of admission were 23 per cent (13 per cent in 1960), with variations from 14 to 30 per cent among the countries concerned.

(1) This report covers very wide regional differences. In 1963, the rates of admission varied from 19 per cent (Alabama) to 63 per cent (California), around an average rate of 36 per cent. Cited in W.W. Willingham, Free Access Higher Education, Table E, p. 202, College Entrance Examination Board, New York, 1970.

Table 16

Trends of flows of new entrants in post-secondary education

	1960	1965	1970	Rate of increase		
				1960/65	1965/70	1960/70
Austria	8,510	8,064	12,581 (1)	-	5.4	4.5
Belgium	18,209	30,524	42,200	10.9	6.8	8.8
Denmark	9,244	14,652	19,524	8.0	6.0	7.8
Finland	8,200	13,240	14,642	11.1	2.0	6.0
France	91,000	182,335	235,116 (2)	14.9	6.5	12.6
Germany	70,058	71,764	109,891	0.4	8.9	4.6
Italy (3)	60,600	107,337	193,974	12.1	12.5	12.3
Netherlands	21,100	30,170	40,400	7.6	6.0	6.7
Norway	..	12,610	15,546	..	6.0	..
Spain	..	..	148,367 (1)	17.8 M	9.2 M	..
Sweden	..	..	..	17.8 M	9.2 M	..
Turkey	..	27,955	39,793	..	5.6	..
United Kingdom	..	..	228,825 (1)	..	5.7 M	..
Yugoslavia	70,816	86,029	111,409	3.9	5.3	6.8
Australia	..	..	49,164	5.0 M	5.6 M	5.3 M
Japan	214,762	349,428	484,650	10.2	6.7	8.4
United States	929,823	1,145,926	1,798,000	9.4	4.3	6.8

(1) 1969-70.
(2) 1968-69.
(3) First year enrolments.
M New entrants into universities only.

Source: See Annex II.

Table 17

Admission rates to post-secondary education

(in percentages of an average age group)

	Age group considered	1960	1965	1970
Austria	18-20	7.0	8.5	13.0*
Belgium	18-20	18.3	22.0	29.5
Denmark	19-21	14.4	16.8	24.1
Finland	19-21	11.9	13.7	16.3
France	18-20	17.5	23.0	27.1*
Germany	20-22	6.8	9.7	13.7
Italy	19-21	7.6	13.0	24.0
Netherlands	17-20	12.0	12.8	18.3
Norway	19-21	..	20.1	26.3
Sweden	19-21	9.4	15.2	26.1
Turkey	18-20	..	4.5	5.7
United Kingdom	18-20	..	..	29.0*
Yugoslavia	18-21	22.5	30.0	30.0
Australia	17-18	..	..	22.2
Japan	18-19	11.1	18.6	26.8
United States	18	35.7	38.8	47.0

* 1969.

Source: See Table 16 and Annex III.

Table 18

Orientation of new entrants to short-cycle education

(as percentage of total new entrants)

	1960	1965	1970
Belgium	57.5	55.5	
Denmark	63.3	51.5	49.7
Finland	39.5	24.0	31.7
France	30.1	29.2	28.1 *
Germany	29.2	36.0	22.0
Greece	11.6	7.2	..
Italy	3.8	2.5	2.1 *
Netherlands	65.9	58.2	54.4
Norway	..	64.6	60.0
Spain	34.0	23.7	..
United Kingdom (1)	..	66.6	66.5
Yugoslavia	32.0	49.0	43.7
Australia	..	..	46.8
Japan	19.7	23.7	26.8
United States	23.1	27.6	34.5

* 1969.

(1) England and Wales - full time students.

Source: See Table D, Annex I.

B. Student Orientation and Choice of Type and Field of Study

Choice of type of education (university or non-university)

The breakdown of the flow of new entrants into these two types of education gives comparative trends in the preferences of students as between short-cycle and university education. Table 18 shows that, during the sixties:

- in all continental European countries (except Finland) the proportion of new students entering short-cycle education decreased steadily;
- in non-European Member countries, this trend is reversed; in the United States for example, 35 per cent of new students entered Junior Colleges in 1970 as against 23 per cent in 1960;
- a few countries do not conform to either of these trends: the United Kingdom, where the proportion of new students going into non-university education is constant (66 per cent) is an example of a balanced development of the two sectors of education; in Yugoslavia, however, the trend towards a faster advance in short-cycle education (Više Škole) was suddenly reversed following the 1966 reforms (1).

The varying purposes and nature of short-cycle higher education (2) would seem to explain this divergent trend:

- in continental European countries, establishments of short-cycle higher education are "specialised". They offer a limited choice of courses and there is no possibility of transfer to the universities; because of this, the majority of students coming from general secondary education prefer university education, in spite of the efforts made by the authorities to develop short-cycle education;
- in countries such as the United States or Japan, where short-cycle education offers transfer possibilities (3) and a greater variety of subjects, it tends to absorb an increasing part of the demand. The more selective character of university admission is probably not unrelated to this development, but it does not seem to be the determinant factor.

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(1) Innovation in Higher Education: Reforms in Yugoslavia, OECD, Paris, 1970.

(2) Short-Cycle Higher Education: A Search for Identity, op.cit., Part One.

(3) In the United States, for example, nearly 70 per cent of the first year students in Junior Colleges who were consulted in 1969 stated that they were reading for a B.A. or a B.S. (National Norms for Entering College Freshmen, American Council of Education, 1970). In reality, however, only 15 per cent on average of these students go each year into establishments providing four-year courses.

Choice of field of study at the university

An earlier Secretariat report (1) identified a number of fairly clear trends, common to most countries, as far as the choice of field of university study was concerned. These showed, between 1950 and 1965, a slight increase in the proportions of students enrolled in pure science, a slight and relative decrease in students enrolled in technology, a very clear fall in the relative position of medical sciences and law, and a very marked increase in the proportions of students enrolled in humanities and social sciences. On the whole these trends continued up to the end of the sixties, but seemed to become less marked; in some countries fairly clear changes can be seen in the selection or rejection of a particular field of study. On the basis of data given in national publications, the following remarks may be made:

- from 1964 onwards, following very rapid expansion from 1955 to 1963, there was a fairly marked stability in the position of pure science, and in some countries (France, Sweden) there was an appreciable fall;
- the proportions of students enrolled in technology continued to fall slowly during the sixties; in several cases (Denmark, Italy), there seems to have been some degree of stabilisation;
- the relative decline in admission to medical studies, which was often considerable up to 1965, is much less clear; in some cases (Belgium, France, Spain), this trend was even reversed;
- the relative place of legal studies continued to fall in the majority of countries, but apparently less rapidly than before 1965;
- new students continued to show an increasing preference for studies in social sciences (Sweden, Denmark), and humanities (France, Italy, Spain), but in the latter case the trend was less marked than before 1965.

C. Educational Origin of Students and Trend in the Number of Secondary School Leaving Certificates

Conditions of access to post-secondary education are very complex and vary not only from country to country but also within each country according to the type and field of study. (2) In a summary fashion, three transfer models can be distinguished by using as criteria the minimum conditions required for admission to higher education, that is to say the type of secondary school leaving certificate:

- in countries where secondary education is organised on a comprehensive basis, a single certificate (although corresponding to different options and levels) allows access to different types of higher education (United States, Japan, certain Canadian Provinces, Sweden since 1971);
- the United Kingdom has a system in which certificates are of different levels and determine admission to the different types of establishments (two or more 'A' levels for the universities, five or more 'O' levels for other establishments). This is shown in Table 19;

(1) Development of Higher Education, op.cit., Chapter IV.
(2) See Study II of the present publication.

Table 19

Breakdown of new students according to level of secondary school leaving certificates

(England and Wales)

Percentages

New entrants \ level of certificate		2 or more 'A' levels	5 or more 'O' levels, 1 'A' level	Less than 5 'O' levels
Universities	1960	99.4	0.6	--
	1970	99.4	0.6	--
Teacher training college	1965	47.4	51.4	1.2
	1970	48.0	49.8	2.2
Advanced further education	1965	15.8	24.6	59.6
	1970	18.0	27.0	55.0

Source: Statistics of Education, op.cit.

Table 20

Educational origin of new students in university-type education (European Member countries)

Percentages

		Secondary school leaving certificates		Other training
		General	Technical and other	
Austria	1966	81.2	16.0	2.9
	1971	82.0	14.0	2.0
Denmark	1965	92.8	--	7.2
	1969	71.0	19.6	9.4
Finland	1966	91.2	5.6	3.2
France	1959	95.4	2.1	2.5
	1970	96.5		3.5
Germany	1960	97.9	0.8	1.3
	1966	94.0	1.8	4.2
Italy	1960	60.0	38.3	1.7
	1969	35.2	62.8	2.3
Netherlands	1960	89.3	6.8	1.3
	1969	83.5	10.3	4.0
Norway	1965	91.3	1.9	6.8
	1970	97.5		2.5
Sweden	1964	94.0	4.7	1.3
Yugoslavia	1960	65.5	29.6	4.9
(Full time)	1969	72.2	26.0	1.8

Source: See Annex II.

- in other European Member countries, the internal diversification of secondary education (general and technical) gives rise to very different methods of transfer; the educational origin of new students is not therefore easy to determine or to measure in the absence of cohort analyses. Almost every university student holds a secondary school leaving certificate, as shown in Table 20. The adoption of special procedures to facilitate access for adults not holding this certificate has not apparently had a very marked effect; such procedures of access concerned less than 5 per cent of new students and one may therefore conclude that traditional university education has not been made extensively more available to adults during the sixties. On the other hand, in several countries (Denmark, Italy, Netherlands, Yugoslavia) considerable numbers of those holding technical secondary school leaving certificates have been admitted to universities on a basis of equivalence. This trend, which concerns only a few countries, has certainly helped to diversify the student population, and also perhaps to increase admission possibilities for students of modest origins who are relatively more numerous in technical secondary schools.

In short-cycle higher education the educational origin of students is much more heterogeneous than in long-cycle higher education and these origins vary considerably according to the category of the establishment. This information is seldom broken down; the few statistical data which follow tend to show that for adults with no secondary school leaving certificate, admission to these establishments is as difficult as to the universities, but that students from technical secondary education are admitted in considerable numbers.

Table 21

Educational origin of new students in short-cycle higher education

(some examples)

Percentages

	Secondary school leaving certificates		Other
	General	Technical	
Denmark: Teknica (1969)	3.5	96.0	0.5
France: I.U.T. (1971)	55.5	44.5	4.8
Yugoslavia: Više Škole (1969)	57.2	37.8	5.0

Source: See Annex II.

Trend in the number of secondary school leaving certificates

In accordance with the OECD classification of educational systems, the certificates awarded on completion of general or technical education [type (a)], which "offers students a relatively good chance of continuing their studies in a higher education establishment", have been tabulated (1). In Member countries with very wide internal differences in upper secondary education, it has been possible to regroup the many different certificates according to the opportunities they offer, in reality, of access to various types of higher education; a sub-category (a') tabulates certificates of general (and sometimes technical) education which effectively give access to university-type education (in accordance with the data in Table 20 in the educational origin of new entrants). In several countries, moreover, (Germany, Denmark, Finland) only this sub-category is statistically identifiable. (See Annex V).

On the basis of the data in Table 22, the absolute and relative increase in the number of graduates evolved as follows during the sixties:

- the number of secondary school certificates awarded increased during the sixties at an average annual rate of 8.2 per cent (or a little more rapidly than the number of new students - 7.8 per cent);
- the annual average increase was more rapid before 1965 (9.3 per cent) than after (7.2 per cent), but this relative decrease is of about the same magnitude as the decline in the population in the corresponding age groups and can therefore be attributed almost entirely to demographic variations;
- a country comparison of the proportion of graduates (as a percentage of the corresponding age group) is valid only if it can refer to all type (a) certificates. It shows the considerable gap existing around 1970 between the non-European countries where nearly three-quarters of an age group fulfilled the minimum conditions for admission to higher education, and the European countries where this proportion was less than 30 per cent.

D. Measurement of Transfer Flows from Secondary to Higher Education

Such measurement can only be approximate since the impossibility of following cohorts makes it necessary to assume that the new entrants for the year are all recruited among secondary school graduates in year t - 1, which is inexact. The intervals between leaving secondary school and entering post-secondary education have various causes; in certain cases, they reflect the wish of some of the certificate holders to interrupt their studies for a time. Such a tendency may be significant from the point of view of setting up a system of recurrent education based on alternation with other activities. However, on the basis of the few available statistics on this point, it seems that this interval did not increase during the sixties. Trends in transfer rates will be described by reference to the three methods of transfer mentioned previously:

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(1) Classification of Educational Systems in OECD Member Countries, op.cit.

Table 22

Trends in the number of secondary school leaving certificates

Country	Type of Certificate *	1959-60	1964-65	1969-70	as a percentage of a single age group	
					1960	1970
Austria	a'	7,230	7,133	12,384	5.9	12.8
	a	11,100	12,200	..	9.1	..
Belgium	a'	11,254	23,245	30,071	11.3	21.0
	a	22,900	40,700	..	23.0	..
Denmark	a'	4,443	8,958	9,662 (2)	7.0	12.2
Finland	a'	7,666	13,444	18,280	11.1	20.3
France	a'	59,287	96,924	136,707	11.4	16.5
	a	70,900	134,700	189,640	13.6	22.8
Germany	a'	56,600	51,510	77,208 (1)	5.5	9.8 (1)
Greece	a'	18,200	32,100	37,958	13.6	27.4
Italy	a	77,121	103,959	143,592 (1)	10.0	16.8 (1)
Netherlands	a'	11,500	17,183	24,083	6.7	10.9
Norway	a'	5,770	11,904	14,882	13.0	25.1
Spain	a'	11,793	20,337	27,158 (1)	2.6	..
	a	24,800	34,300	52,000	5.4	..
Sweden	a'	9,136	18,672	30,042 (2)	9.4	24.1 (2)
	a	9,538	19,236	42,119	9.8	33.9
Turkey	a'	10,913	23,227	32,780	1.8	4.7
United Kingdom	a'	43,300	66,090	74,530	6.7	9.5
	a	..	134,630	145,800	-	18.5
Yugoslavia	a'	30,313	53,855	71,146	9.6	19.2
	a	66,398	95,698	144,937	21.1	39.0
Australia	a	..	46,633	61,474	23.0	28.1
Japan	a	933,700	1,160,100	1,402,962	47.9	73.0
United States	a	1,864,000	2,642,000	2,899,000	71.0	76.4

(1) 1967-68.

(2) 1968-69.

* Classification of certificates (a) and (a'): See Annex V.

Source: See Annex II.

(i) For countries with a single secondary school leaving certificate, transfer rates were as follows:

		Overall transfer rate	Of which to:	
			University-type education	Non-university-type education
United States	1960	52.0	39.4	12.6
	1965	53.6	39.0	14.6
	1970	62.0	40.6	21.4
Japan	1960	22.9	18.3	4.6
	1965	28.2	21.2	7.0
	1970	32.8	23.7	9.1

Sources: See Tables 16 and 22.

The chances for High School Certificate holders to continue their education have thus clearly increased (by 20 per cent in the United States and by 40 per cent in Japan), but essentially in favour of short-cycle education. The stability of transfer rates to the universities in the United States is particularly striking. Data referring to Canada are scarce (1): in 1966-67 in four Provinces, 38 per cent of the students in the final year of secondary school entered the universities;

(ii) In the United Kingdom (England and Wales), a growing proportion (80 per cent) of holders of the G.C.E. (2 or more 'A' levels) were admitted to post-secondary education. It will be seen (Table 23) that the constant overall rate conceals a fall in the transfer rate to the universities (from 56 to 48 per cent) and a more marked orientation towards other establishments (from 24.6 to 31 per cent). This has not apparently had an adverse effect on chances of admission for students without the "Advanced level" (although their numbers have increased less rapidly);

(iii) In the other European Member countries, it is not always possible to measure overall transfer flows. Transfer of secondary school leavers to the universities is a little more easily identifiable, although the calculation of these rates is still approximate either because a fraction of the new entrants (20 per cent in Austria or Denmark) have a different educational origin, or because first-year enrolments are used (Italy) and this means estimating the percentage of repeaters, etc.

(1) R. Pike, "Ceux qui n'iront pas à l'université et pourquoi" (Those who will not go to university and why), Association des universités et collèges au Canada, Ottawa, 1970, p.32.

Table 23

England and Wales: Orientation of qualified secondary school leavers

(as a percentage of total qualified school leavers)

		O level		A level	
		- 5	5 +	1	2 +
Universities	1960	0	1.3	5.9	56.4
	1965	0	0.3	1.7	51.3
	1970	0	0.4	1.0	48.7
Teacher training colleges	1960	0.7	8.8	32.7	12.3
	1965	0.1	7.1	32.8	12.9
	1970	0.1	8.5	30.3	14.0
Further education	1960	14.9	18.3	20.4	12.3
	1966	6.8	21.4	20.1	14.2
	1970	8.2	26.0	25.5	17.0
Total	1960	15.7	28.4	59.0	81.0
	1965	7.0	28.8	54.5	78.4
	1970	8.3	34.9	56.9	79.6
Other channels	1960	84.3	71.6	40.8	19.0
	1965	93.0	71.2	45.5	21.6
	1970	41.7	65.1	43.1	20.4
Total (1960/65/70)		100.0	100.0	100.0	100.0

Source: Statistics of Education, op.cit.

Table 24

Rate of transfer to university-type education: European countries

(as percentage of secondary school (a') certificate holders)

	1960	1965	1970
Austria	71*	73*	63*
Belgium	68	58	62
Denmark	84*	87*	73*
Finland	64	75	55
France	80	93	82
Germany	86	90	85*
Greece	38	42	33
Italy	60	79	79*
Netherlands	63	73	77
Norway	48	38	46
Sweden	81	89	88
Turkey	—	42	33
United Kingdom (1)	56	51	49
Yugoslavia	72	46	43

* Estimation.

(1) As a percentage of holders of two or more GCE 'A' level passes (England and Wales only).

Source: See Table 22 and Table D, Annex I.

Two comments are prompted by Table 24 which shows rates of transfer to university-type education.

- The average level of these rates allows two groups of countries to be distinguished. In the first (Germany, Denmark, France, Italy, Netherlands, Sweden), almost all holders of type (a') secondary certificates accede to university education, which is fairly open. In the other cases, the possibilities of choice seem greater and a large number very probably go to short-cycle education. This is true of several Mediterranean countries, and also of Belgium, Finland and Norway where university education is less easily accessible and where the non-university sector is more developed. Other elements, specific to each country, might partially explain these differences.
- In many countries, after stable or increasing rates in the early sixties, a tendency towards a slight fall in transfer rates is fairly clear towards the end of the sixties. This fall is clear in Austria, Denmark and Finland, in several of the Mediterranean countries, and is even more apparent in Germany and France. We may suppose that the trend in flows of new entrants to universities during the sixties results essentially from the increase in the number of secondary school graduates (in Italy and the Netherlands, however, a slight increase in transfer rate probably accounts for nearly one-third of the increase in entry flows). Moreover, the effect of the decrease in the corresponding age group on the trend of new entrant flows and secondary graduate flows shows that on average about 70 per cent of the slower advance in the number of new students after 1965 would be attributable to the relative decline in the number of graduates (resulting entirely from demographic trends) and nearly 30 per cent to the slight decline in transfer rates to the universities. It might be supposed (as was found in the United States, Japan and the United Kingdom) that this decline, which reflects a slight slackening of the traditional, close dependence between holding the (a') general secondary school certificate and going to a university corresponds to a certain reorientation of such school leavers towards short-cycle higher education, rather than to an interruption of studies or to effective or desired entry to the labour market. If, however, it is remembered that non-university education has developed more slowly in these countries (except Finland), such an assumption would imply a rise in the level of intake into short-cycle higher education (at the expense of holders of other secondary (a) certificates or entrants through other channels) and some tightening-up in selection for short-cycle studies.

E. Performance of University Education and Trends in the Number of First Degrees

Analysis of student flows within higher education systems and out of them is hampered by the lack of statistical information concerning the duration of studies, measurements of pass rates, drop outs, transfers, etc. (1). A few data are given in

(1) The results of some existing surveys have been mentioned in Development of Higher Education, op.cit., Chapter VI. Little new information is available.

Table 25; they are indicative value only and their comparative significance is very limited. The differences between the theoretical and the actual duration of first-cycle university education are particularly marked, ranging from one to two years. Large differences exist among countries in pass rates which in half the countries mentioned are no higher than 55 per cent. Because of the lack of precise data it is not possible to ascertain trends for the average duration of studies or for pass rates during the sixties.

Table 25

Average duration of university studies and approximate pass rates

	Duration of studies (in years)		Approximate pass rates * (1960-65) in percentages
	theoretical	actual	
Austria	4	5	47
Belgium	4	5	66
Denmark	6	7	55
Finland	4	5	66
France	4	5	44
Germany	4-4.5	5	52
Greece	5	6	62
Ireland	3-4	4	83
Italy	4	6	56
Netherlands	4-6	7	60
Norway	4-5	5	54
Spain	4-5	6	45
Sweden	4	4-5	68
United Kingdom	3-4	3-4	86
Yugoslavia	4	6	41
Japan	4	4	91
United States	4	4-5	70

* Average proportion of new entrants obtaining their first university degree.

Source: Development of Higher Education, op.cit., Chapter VI.

The increase in the number of first degrees

Such degrees (Licence, Laurea, B.A., etc.) are awarded - according to the Classification of Educational Systems - upon completion of undergraduate studies and have an academic or vocational value. A particularly rapid increase may be seen in the number of first degrees awarded (Table 26) towards the end of the sixties. The differences, by country, in the rates of first degree graduates, given as a percentage of the average population of the single-year age group in which these degrees were obtained are particularly striking. In Canada and in the United States, these rates are 20 and 27 per cent respectively (1970). They are 10 per cent in Japan and Sweden, whereas in the other Member countries from 5 to 7 per cent of a single-year age group obtain a first degree (apart from some developing countries where this proportion is lower than 3 per cent). These variations reflect different levels in the "output capacities" of university education in Member countries. Some of the economic implications of these differences are dealt with in Study IV of the present publication.

Table 26

First degree in university-type education

	Number of graduates (in thousands)			As a percentage of a single-year age group	
	1960	1965	1970	1960	1970 (4)
Austria	2.3	3.2	4.0	2.90	3.3
Belgium	4.2	4.4	6.5(2)	3.66	4.85
Denmark	1.3	1.7	3.8(3)	2.30	4.60
France	12.2	30.8	32.4(1)	2.06	5.20
Germany	21.2	21.5	..	2.80	..
Greece	4.5	4.6	7.9(2)	3.10	6.25
Italy	25.5	33.0	37.8(1)	3.26	4.70
Netherlands	3.5	4.0	7.2	2.30	3.75
Norway	1.4	1.8	2.5	3.54	4.94
Portugal	1.4	1.4	2.3	1.00	1.50
Spain	5.3	7.6	12.1(2)	1.10	2.40
Sweden	4.1	6.2	14.8(3)	4.60	11.00
Switzerland	1.8	2.5	2.7	1.50	3.30
Turkey	4.0	6.5	10.9	0.80	1.94
United Kingdom	24.7	34.6	47.0(1)	3.55	5.46
Yugoslavia	11.8	12.8	14.4	3.52	5.10
Canada	19.7	37.7	60.5(2)	8.55	19.42
Japan	122.0	178.0	241.0(1)	7.43	10.00
United States	406.7	551.0	865.0	15.40	26.80

(1) 1968-69. (3) 1971-72.
(2) 1969-70. (4) or most recent year.

Source: See Annex II.

FINAL REMARKS: ESTIMATED ENROLMENT TRENDS DURING THE SEVENTIES

The largely autonomous development of post-secondary education and the difficulty of influencing factors affecting demand make it extremely difficult to estimate future enrolments. Disparities between earlier forecasts and actual data illustrate this. (1) During the coming year enrolment forecasts will probably be even more difficult to establish in view of the growing diversification of demand and supply. Diversification of demand results from the changes expected in the composition of the student body and from the wider range of requirements and aspirations of the different sub-groups, in particular adults. Diversification of supply is already apparent in the development of non-traditional forms of education. Moreover, the most recent trend towards a policy of recurrent education implies not only a diversification of the institutional framework but the supply of a variety of possibilities of attendance in terms of space-free and time-free higher education. The very concept of growth as it is described at present, that is by reference to full time students, will certainly have to be re-thought or will at the very least require other criteria of measurement.

(1) Development of Higher Education, op.cit., Chapter VII.

The expansion recorded over the past 15 years shows the existence of a considerable growth potential and of widening prospects for future growth. But it is probable that growth will not follow the same pattern as in the past, nor will it conform to the United States' model, so that it is difficult to express it in long-term projections. With reference to short or medium term growth, we make only the two following remarks.

The weakening of demand already evident by 1968 in several countries (France, United Kingdom, United States) continued in 1971 and 1972. However, not all countries show this slackening demand. The national data shown in Table 27 illustrate these divergent trends.

Table 27

Recent trends in new entrant flows
(percentages of annual average rates)

	1965-70	1968-70	1970/1-1971/2
Austria	5.4	7.0	13.4
Belgium (1)	6.8	7.3	6.4
Denmark	6.0	10.6	15.0
France (1)	(9.5)	(4.0)	(3.7)
Sweden (1)	8.9	-6.0	-11.0
United Kingdom (1)	(6.1)	(3.8)	(3.5)
United States			
4-year colleges	2.4	4.0	1.3
2-year colleges	9.1	7.3	6.0

(1) Universities only.
The figures in parentheses refer to enrolments.
Source: See Annex II.

Enrolment forecasts for the seventies confirm this slowing-down of growth in relation to the period 1960-1970. The forecasts made in 1966-1968 had already shown this relative decline.(1) These forecasts concern 16 Member countries. They were prepared by the national services and based on assumptions which are not always defined, except for the 5 Mediterranean countries where they come from a recent study by the Secretariat. (2)

According to these data, growth would be dinstinctly less rapid during the seventies in nine of the 16 countries quoted; it would be at least equal to that recorded during the sixties in five of the countries (Germany, Austria, Finland, Spain and Portugal) or just below it in two countries (Canada, Yugoslavia). In three countries (France, Sweden

(1) cf. Development of Higher Education - Analytical Report, op.cit., Chapter VII.

(2) "Mediterranean Education Development Review: Educational Trends and Perspectives in Developing Member Countries", OECD (forthcoming publication).

Table 28

Average annual growth rates of expected enrolments
(most recent forecasts)

Austria	1966-70 :	(2.5)	
	1970-75 :	(5.2)	
	1975-80 :	(7.8)	
Denmark	1960-70 :	9.4	
	1970-84 :	4.5	
Finland	1962-72 :	5.8	
	1972-75 :	4.0	
	1975-81 :	7.8	
France	1960-70 :	10.8	
	1970-75 :	(3.8)	
	1970-85 :	2.8	
Canada	1960-70 :	(10.4)	
	1970-75 :	(12.2)	
	1975-80 :	(6.1)	
Germany	1960-70 :	5.8	
	1970-75 :	6.6	(7.2)
	1970-85 :	(5.6)	
Sweden	1960-70 :	12.7	
	1970-74 :	- 1.0	
Switzerland	1960-70 :	(7.1)	
	1970-75 :	(2.6)	
	1975-80 :	(1.6)	
United Kingdom	1962-71 :	8.9	(8.0)
	1971-80 :	5.0	(4.8)
Japan	1960-70 :	9.0	
	1971-80 :	4.1	
United States	1960-70 :	8.5	
	1970-80 :	4.5	

	1960-69	1969-79
Greece	12.8	5.5
Portugal	8.3	8.7
Spain	9.4	9.6
Turkey	11.2	5.8
Yugoslavia	6.9	5.8

The figures in brackets refer to university-type education only.

Source: See Annex VI.

and Switzerland), the expected fall would lead to quasi-stabilisation, whereas in other countries (Denmark, United Kingdom, United States, Japan, Greece and Turkey) the rates of increase would be 40 to 60 per cent below those of the previous decade.

Comparisons of forecasts which refer to different basic data or different assumptions, and aim at variable horizons, are very debatable; however, it appears that the average annual increase for 1970 to 1980 would be about 4.6 per cent, as compared with 8.4 per cent in 1960-70; a ten year growth of 60 per cent as against 125 per cent in 1960-70 for this group of 16 countries. However, according to the most recent demographic forecasts, the population in the 20 to 24 age group would increase in the same group of countries by about 0.6 per cent per year during the decade, as against 2.5 per cent in 1960-70; the demographic trend would explain therefore only about 50 per cent of the slowing-down in expansion. These overall data conceal very marked differences among countries or sub-groups of countries. A distinction between the 11 developed countries and the group of developing countries takes account of the effects of a divergent trend.

Table 29

Rate of average annual increase (in percentages)

	Student enrolments	Population in the 20-24 year age group
11 developed countries		
1960-70	8.4	2.8
1970-80	4.4	0.3
5 developing countries		
1960-70	8.0	1.2
1970-80	7.4	2.1

According to these data, over 60 per cent of the less rapid increase in student enrolments would be due to the slower population growth in the first group of countries; for the developing countries, on the other hand, the expansion in higher education should continue at the same pace, in spite of a higher rate of increase in the population in the corresponding age group. In both cases, therefore, we should find a slight fall in "demand" which, in relation to the rate of expansion shown in 1960-70, would reduce by about 1.5 points the rate of average annual increase in enrolments from 1970-1980. This concept of demand is understood here in its accepted sense, that is to say as coming from young people hoping to pursue full-time studies in traditional higher educational establishments (essentially the universities). This decline does not exclude the emergence of "new demands", through a network of new institutions or forms of non-traditional education not covered by the forecasts, nor the carrying over of this demand into the future, once the bases of recurrent education have been established. (1)

(1) cf. Recurrent Education: A Strategy for Lifelong Learning, OECD/CERI, Paris, 1973.

ANNEX I

BASIC STATISTICAL DATA

Table A

Enrolments in Higher Education

(in thousands)

	1950	1960	1965	1970
Austria	22.5	38.9	50.1	62.5
Belgium	30.2	52.0	84.0	127.1*
Denmark	19.5	32.5	53.2	77.1
Finland	17.6	29.2	48.5	67.1
France	185.4	256.0	527.0	778.8 (1)
Germany	146.9*	313.2 (3)	367.4	494.9
Greece	15.3*	30.5	66.7	84.6 (1)
Iceland	0.6*	0.8*	1.1*	1.4*
Ireland	11.2	14.0	20.7	26.2
Italy	240.7	284.3	424.7	694.2
Luxembourg	0.3	0.5	0.7	0.6
Netherlands	63.5*	109.4	152.6	229.5
Norway	13.3	21.7	35.9	49.3
Portugal	14.4	24.0	34.5	52.0
Spain	113.8*	185.4	274.1	351.9
Sweden	27.3	47.9	83.5	145.7
Switzerland	18.3	30.0*	35.0*	43.0 (2)
Turkey	27.7	65.4	103.1	155.4
United Kingdom	294.7*	287.7*	433.4*	589.7 (1)
Yugoslavia	60.4	140.6	184.9	261.2
Australia	34.9*	70.7	131.7*	175.4
Canada	167.0	286.3	471.3	711.1 (1)
Japan	240.0	712.0	1,093.0	1,685.6
United States	2,297.0	3,610.0	5,570.3	7,608.0

* Estimate. (1) 1969. (2) 1968. (3) 1961.

Source: See Annex II.

Table B

Enrolments in University-type Higher Education

(in thousands)

	1950	1960	1965	1970
Austria	22.5	38.5	48.9	54.9
Belgium	20.2	30.7	48.8	75.1
Denmark	13.1	14.4	29.9	46.1
Finland	14.4	23.5	40.2	58.1
France	156.4*	206.2	434.6	654.8 (1)
Germany	122.2	257.9 (3)	298.1	407.1
Greece	13.1*	25.7	54.2	72.6 (1)
Iceland	0.6*	0.8*	1.1*	1.4*
Ireland	7.2	9.8	15.4	19.6
Italy	236.2	276.8	415.5	681.7
Luxembourg	0.1	0.1	0.2	0.2
Netherlands	29.7	40.8	64.4	103.4
Norway	7.0	9.3	19.5	30.5
Portugal	13.3	19.6	26.1	41.1
Spain	54.6	77.1	125.9	213.1
Sweden	16.7	36.2	66.2	120.0
Switzerland	17.1	n.a.	n.a.	38.1 (2)
Turkey	24.8	51.2	66.9	92.6
United Kingdom	115.2*	146.6*	211.6	296.3 (1)
Yugoslavia	54.8	108.4	116.3	180.1
Canada	84.7*	145.1	279.8	423.6 (1)
Japan	224.9	628.5	938.0	1,406.5
United States	2,079.0	3,156.4	4,725.1	6,124.0

* Estimate. (1) 1969. (2) 1968. (3) 1961.

Source: See Annex II.

Table C

Enrolments in Non-University-Type Higher Education

(in thousands)

	1950	1960	1965	1970
Austria	-	0.4•	1.2•	7.6
Belgium	10.0	21.3	35.2	52.0•
Denmark	6.4•	18.1	23.3	31.0
Finland	3.2	5.7•	8.3	9.0
France	29.0•	49.8	92.4	124.0 (1)
Germany	24.7•	55.3 (3)	69.3	87.8
Greece	2.2•	4.8	12.4	12.0 (1)
Ireland	4.0	4.2	5.3	6.6
Italy	4.5	7.7	9.2	12.5
Luxembourg	0.2	0.4	0.5	0.4
Netherlands	33.8•	68.6	88.2	126.1
Norway	6.3	12.4	16.4	18.9
Portugal	1.1	4.4	8.4	10.9
Spain	59.2•	108.3	148.2	138.0
Sweden	10.6	11.7	17.3	25.7
Switzerland	1.2	n.a.	n.a.	4.9 (2)
Turkey	2.9	14.2	36.2	62.8
United Kingdom	179.5	141.1•	221.8	293.4 (1)
Yugoslavia	5.6	32.2	68.6	81.1
Canada	82.3•	141.2	191.5•	287.5 (1)
Japan	15.1	83.5	155.0	279.1
United States	217.6	453.6	845.2	1,484.0

• Estimate. (1) 1969 (2) 1968 (3) 1961

Source: See Annex II.

Table D

New Entrants to Higher Education

(in thousands)

	University			Non-University		
	1960	1965	1970	1960	1965	1970
Austria	8.5	8.1	9.2 (1)	--	--	3.3 (1)
Belgium	7.7	13.6	18.7	10.4	16.9	..
Denmark	3.4	7.1	9.8	..	7.5	9.7
Finland	5.0	10.0	10.0	..	3.1	4.6
France	63.4	129.0	169.0 (1)	28.0	53.3	66.7
Germany	49.6	45.9	85.7	20.4	25.9	24.2
Italy	58.2	104.6	174.8 (1)	2.3	2.7	3.7 (1)
Netherlands	7.2	12.6	18.4	13.9	17.5	22.0
Norway	2.8	4.5	6.2	..	8.1	9.3
Spain	..	..	76.6 (1)	..	..	71.8 (1)
Sweden	7.4	16.7	25.9	..	..	..
Turkey	..	16.0	17.6	..	11.9	22.1
United Kingdom	..	..	82.8 (1)	..	..	146.0 (1)
Yugoslavia	48.1	43.7	62.6	22.6	42.3	48.8
Australia	15.6	20.0	26.3	..	..	22.9
Japan	172.4	266.4	354.6	42.3	83.0	130.0
United States	714.4	1,050.6	1,177.0	215.4	402.3	621.0

(1) 1969

Source: See Annex II.

ANNEX II

STATISTICAL SOURCES: STUDENTS

The statistics used in this report are taken from national publications; the form in which they are presented is that of the OECD classification of educational systems. Data up to 1967 were collected during a survey made for the Secretariat and have been published in Development of Higher Education, 1950-1967: Statistical Survey and Analytical Report, OECD, Paris, 1971. These figures have been updated (and modified where there have been changes in the classification system), to 1970, frequently the latest year for which data are available. The data were taken from the following national publications:

Australia	University Statistics Commonwealth Bureau of Census and Statistics, Canberra
Austria	Osterreichische Hochschulstatistik Osterreichisches Statistische Zentralamt, Vienna
Belgium	Annuaire statistique de l'enseignement Ministère de l'éducation nationale, Brussels
Canada	Survey of Higher Education Dominion Bureau of Statistics, Ottawa
Denmark	Statistik Undervisningsministeriet, Copenhagen
Finland	Higher Education Official Statistics of Finland, Helsinki
France	Informations statistiques Ministère de l'éducation nationale, Paris
Germany	Bevolkerung und Kultur, Reihe 10, Vol. III and IV Statistisches Bundesamt, Wiesbaden
Greece	Statistics of Higher Education, Vol. IV National Office of Statistics, Athens
Italy	Annuario Statistico dell'Istruzione Italiana Istituto Centrale di Statistica, Rome
Japan	Education in Japan Ministry of Education, Tokyo
Netherlands	Statistics on University Education Netherlands Central Bureau of Statistics, The Hague
Norway	Undervisningsstatistikk Central Bureau of Statistics, Oslo
Portugal	Estatistica de Educacao Instituto Nacional de Estatistica, Lisbon
Spain	Estadistica de la Enseñanza Superior en España Instituto Nacional de Estadistica, Madrid
Sweden	Statistical Reports on Education National Central Bureau of Statistics, Stockholm
Switzerland	Annuaire des universités et des hautes écoles suisses Office central universitaire suisse, Geneva
Turkey	Higher Education Statistical Year Book, National Institute for Statistics, Ankara
United Kingdom	Statistics of Education, Vol. 3 and 6, HMSO, London
United States	A Fact Book on Higher Education American Council on Education, Washington
Yugoslavia	Višoke Škole Federal Institute for Statistics, Belgrade

ANNEX III

SOURCES: DEMOGRAPHIC STATISTICS

These data have been taken from:

- Relevant editions of the United Nations Demographic Year Book;
- OECD publications:
  - Demographic Trends from 1965 to 1980, Paris, 1966.
  - Enquiry into Demographic Trends in Member Countries, (forthcoming), (where the most recent population perspectives are to be found);
- Year books of national statistics, when the data were not available in the above publications.

ANNEX IV

STATISTICAL SOURCES: THE SOCIAL ORIGIN OF STUDENTS

All data up to 1966 may be found in:

Group Disparities in Educational Participation and Achievement, Conference on Policies for Educational Growth, OECD, Paris, 1971.

The more recent data have been taken from:

Finland	Finland and Its Students, National Union of Finnish Students, Helsinki, 1970.
France	Effectifs universitaires au 31.3.1968, Document provisoire No. 3596, ministère de l'Education nationale, Paris, 1969.
Germany	Bevolkerung und Kultur, Studenten an Hochschulen, Vol. V, Winter, 1970-71, Wiesbaden.
Netherlands	Statistics on University Education 1970-71, Netherlands Central Bureau of Statistics, The Hague.
Norway	Undervisnings Statistikk 1968, Central Bureau of Statistics, Oslo.
Sweden	Val av utbildning och yrke, U 68 Report, Stockholm, 1971.
United Kingdom (England and Wales)	Statistical Supplement to the Eighth Report 1969-70, The Universities' Central Council on Admissions, London, 1971.
Yugoslavia	Visoke Škole 1969-70, Federal Institute for Statistics, Belgrade, 1971.

ANNEX V

CLASSIFICATION OF DIPLOMAS OF SECONDARY EDUCATION

Diplomas for secondary education have been divided into:

- Type a, indicating completion of studies "offering pupils a relatively good chance of continuing their studies in a higher education establishment"; cf. Classification of Educational Systems in OECD Member Countries, OECD, Paris, 1972.

- Type a', a sub-category of the above, which is a requirement for entry into higher education.

The following diplomas have been taken into consideration in the countries concerned:

Australia	a	:	High School Certificate or Matriculation or Senior Certificate.
Austria	a'	:	Reifeprüfung.
Belgium	a'	:	Certificats d'humanités.
Canada	a	:	Immatriculation.
Denmark	a'	:	Studentereksamen, Højere Forberedelse Forberedelseksamen.
Finland	a'	:	Studentexamen - Ylioppilastutkinto.
France	a'	:	Baccalaureate.
	a	:	Baccalaureate and brevet de technicien supérieur.
Germany	a'	:	Arbitur.
Greece	a'	:	Secondary school leaving certificate awarded by the lycées.
Italy	a	:	Maturité classica, scientifica, technica et artistica.
Japan	a	:	High School Certificate.
Netherlands	a'	:	Secondary school leaving certificate awarded by the "Gymnasium" and the "Hogereburgerschool".
Norway	a'	:	Studenteksamen.
Spain	a'	:	Prueba de Madurez.
	a	:	Prueba de Madurez - technical baccalaureate, commercial and primary teachers' diploma.
Sweden	a'	:	Studentexamen.
	a	:	Studentexamen, Leaving certificate of the Fackskola.
Turkey	a'	:	State examination at the end of secondary studies awarded by the lycées.
United Kingdom	a'	:	General Certificate of Education - two A level passes and over.
	a	:	GCE five O level passes and over; one A level pass and over.
United States	a	:	High School Certificate.
Yugoslavia	a'	:	Leaving certificate awarded by the lycées.
	a	:	Leaving certificate awarded by: lycées, teacher training schools, technical and vocational schools and fine arts schools.

ANNEX VI

SOURCES: ENROLMENT FORECASTS

Austria	Hochschulbericht 1972, Bundesministerium für Wissenschaft und Forschung, Vienna, 1973.
Canada	Fall Enrolment in Universities and Colleges 1970-71, Ministry of Industry, Trade and Commerce, Ottawa, 1972.
Denmark	Problems of Long-Term Economic Planning in Denmark, Ministry of Education, Copenhagen, 1972.
Finland	Educational Reform in Finland in the 1970's, Ministry of Education, Helsinki, 1970.
France	Education, Rapport de la Commission du 6ème Plan, Commissariat général au Plan, Paris, 1971.
Germany	Quoted in Educational Policy and Planning: Germany, OECD, Paris, 1971.
Japan	Educational Statistics in Japan: Present Trends and Future, Ministry of Education, Tokyo, 1971.
Sweden	Quoted in "Admission Policies in Swedish Post-Secondary Education", OECD document (mimeo).
Switzerland	Deuxième rapport sur le développement des universités suisses, Conseil suisse de la Science, Bern, 1972.
United Kingdom	Education: A Framework for Expansion, HMSO, London, 1972.
United States	Projections of Educational Statistics to 1980-81, U.S. Department of Health, Education and Welfare, Washington, 1971 edition.
Greece, Portugal, Spain, Turkey, Yugoslavia	"Mediterranean Educational Development Review: Educational Trends and Perspectives in Developing Member Countries", OECD (forthcoming publication), Table 16.

II

ADMISSION POLICIES IN POST-SECONDARY EDUCATION

by

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INTRODUCTION

The main questions raised by a study of the problems of access to post-secondary education are the following: who can and should be studying at the post-secondary level; who goes into post-secondary education today and for what reasons; who will be able to accede to this level of education during the current decade, and under what conditions given the policy objectives and reforms officially adopted or planned by Member countries; and what are the changes to be made in admission structures? This paper does not propose to provide the answers to these questions for they are conditional upon specific political choices, but rather to furnish certain basic elements which may be useful in the making of such choices.

The problems of admission to higher education are today one of the major concerns of those responsible for educational policy and planning in many OECD countries. To a great extent, entrance requirements determine increases in enrolments, the socio-economic background from which students are recruited, their choice of studies and subsequent student career, and, at the same time, reflect certain basic principles such as the right to education and freedom of choice. The achievement of certain political objectives - meeting social demand or reducing inequality of participation, for example, - is also bound up with means of access to this level of education. Lastly, a problem inherent in the terms of admission is that of the nature of the structural and functional relationship between secondary education - in particular upper secondary - and post-secondary education. For all these reasons, it would seem that new admission policies are an important prerequisite for other structural changes, and may provide a solution to several problems arising from the growth of post-secondary education.

The importance of the problem of admission is borne out by the fact that it is at present the subject of discussion and controversy in several OECD countries. Opinion is divided between those who favour retaining very liberal regulations which will guarantee the right to education and stimulate increased demand, and those who, in view of financial constraints, see the introduction of more selective measures as inevitable if expansion is to be controlled and the quality of the services provided improved. Some of the arguments put forward will be referred to in this paper, for they reflect the strains on policy-makers and the various options with which they are faced in reforming traditional admission systems.

The first part of this paper consists of a study of the channels of access to post-secondary education in the OECD countries. The study is rather descriptive and attempts both to be comparative and to give a picture of developing situations, taking into account the variety of methods of access in the different countries and the changes which have occurred during the sixties.

The second part deals with the admission policy aspect. The effects and the limits of recent changes in this field are briefly reviewed, and an attempt is made to describe the present tensions which seem to justify more global reforms. Recent trends in admission policy are described with reference to the discussions and controversies they have inspired; in this connection the problems of selecting university candidates which have been aired in many European Member countries are referred to, as are the proposals for open admission which have been discussed in the United States and Canada.

I. ANALYSIS OF THE MEANS OF ACCESS TO POST-SECONDARY EDUCATION IN THE OECD COUNTRIES

Introduction and definitions

Access to post-secondary education can be defined as the sum total of the selection and rejection measures applied during both primary and more particularly secondary schooling and also at the moment of entry into a higher education establishment. This last phase corresponds to admission as such. The process constitutes one aspect of a broader process of allocation, differentiation and selection, among the patterns of study networks to be found in all education systems.

The process may be broken down into two successive stages, which vary in significance according to the country and during which very different factors intervene:

- during secondary schooling, the prospective post-secondary student must either satisfy precise educational standards or make a succession of choices: after a course of basic education common to all and lasting four to eight years, depending on the country, the pupil is streamed (or redirected at a later stage) into a course of study upon completion of which he will have a good chance of continuing his education at the higher level. (1) He must comply with the attainment standards required throughout this course by passing examinations or tests and transferring to the next grade, or in case of failure by repeating, changing streams or dropping out. Lastly, he must take the final certificate or its equivalent, which is nearly always a prerequisite for entering higher education.

- when transferring from secondary to higher education the prospective student must in many cases meet additional requirements (entrance examinations, high performance in certain subjects, successful completion of the first year of higher studies, etc.) which broadly determine his choice of type of establishment or branch of studies.

In reality then, opportunities of access to higher education depend both on the internal organisation of secondary education and the standards in force, and on specific university entrance requirements. The average prospects may be assessed by taking the average proportion of an age group entering higher studies. (2) In 1970 the access rate rose to almost 50 per cent in the United States and in Canada, and to an average of 23 per cent in the other Member countries, as compared with 35 per cent and 13 per cent in 1960.

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(1) Described as secondary education type (a) in the Classification of Educational Systems in OECD Member Countries, OECD, Paris, 1972.

(2) All statistical data are presented in "Quantitative Trends in Post-Secondary Education in OECD Countries 1960-1970", Study I of the present publication.

The scope of the selection applied during secondary schooling can be seen if one calculates the average proportion of an age group awarded a secondary certificate giving access to a higher education establishment (rate of success). In 1970 the proportion was nearly 75 per cent in the United States, Canada and Japan, and some 20 to 35 per cent in most European Member countries. In 1960 the rate was already 70 per cent in the United States, but was only 15 per cent on average for the European countries.

The comparison of these two indices reveals very different conditions of transfer from secondary to higher education. In most European Member countries the majority of those holding certificates of secondary education type (a) continue their studies at the post-secondary level, whereas in the other countries the proportion is smaller (62 per cent in the United States, 33 per cent in Japan in 1970).

From these few facts a distinction can be drawn between two very different models of access to post-secondary education:

- In most European Member countries, the selection of candidates takes place during secondary education; around 1970, more than two-thirds of an age group were excluded and had practically no chance of continuing into higher education. Although the selective and elitist character has become less evident over the last fifteen years, the complementary relationship between the two levels of education has persisted; transfer rates have remained very high, and the growth of higher education has on the whole been the result of repercussions from the development of secondary education.

- In the other Member countries, secondary education is largely general, and is not, except indirectly or during the last year of study, a major factor in the selection or preparation of future students. Selection takes place chiefly on entry into higher education establishments.

From this preliminary distinction it emerges that access to higher education depends upon a selection process, but that the process operates at varying levels and with varying degrees of rigorousness. Each level of education, in particular secondary education, has specific functions which reflect, among others, different stages in the evolution of education systems. (1) These points will be more fully developed in the two sections below.

The organisation of secondary education and the selection of candidates for higher education

The internal organisation of secondary education and the distribution of the student flow among streams, sections or types of establishment provide a picture of how the process of selecting future students operates. It is very difficult to grasp the mechanics

(1) Cf. M. Trow, "Problems in the Transition from Elite to Mass Higher Education", in Policies for Higher Education, Part One, OECD, Paris, (forthcoming).

of this process, which involve on the one hand the working standards for each system (such as the school attainments required, learning methods and the tests applied) and on the other, closely interdependent criteria related to pupils' aptitudes and their socio-economic background.

Four types of organisation of secondary education can be distinguished in Member countries according to the point in time at which future students are selected: (i) at the beginning of secondary education; (ii) during lower secondary education; (iii) on entry into (or during) upper secondary education; or (iv) during the final year or last two years of secondary education, or later still. This is necessarily a sketchy classification, based on the distribution of the flow of pupils rather than on an organigramme of the way studies are organised; as a result it does not take account of certain important changes which have been introduced too recently to have taken measurable effect.

The first type of differentiation (i), corresponds to the traditional model which was to be found until recently in all the European countries. After a common primary school course lasting 4 to 6 years, pupils were allocated between the ages of 10 and 12 into three streams corresponding to three different types of school offering:

- a general course of study in academic schools for an educational and social elite, leading up to university;

- a short general course, usually preparatory to teaching or a career in the technical, commercial or administrative sectors;

- a terminal practical and pre-vocational course.

Several developing Member countries provide examples of this type of organisation. In other countries (for example, Austria, some German Länder and some Swiss Cantons) vestiges of such a system remain, though there have been attempts to avoid streaming at such an early age and to make it easier to change streams.

Germany provides an example of this type of organisation together with recent developments. This trend in pupil distribution on completion of primary school has been as follows (1):

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(1) Educational Policy and Planning: Germany, OECD, Paris, 1972.

Table 1

Germany: Distribution of Pupils in their 5th Year of Study

	1959 %	1969 %
Gymnasium	16	22
Realschule	9	15
Hauptschule	75	63
	100	100

About 10 per cent of the pupils enrolled in the first year in Hauptschulen were transferred to other streams; even taking into account the various possibilities for changing streams, it will be noted that more than half of the 11 to 13 year age group was in practice excluded from courses leading to higher education. Preparation of the Abitur, a certificate held by 95 per cent of university students, is highly selective; in 1965-1970 the average figures for an age group in this stream were 35 per cent in the fifth year of study and 24 per cent in the tenth year, as against 10 per cent who actually obtained the certificate.

In the second type of educational structure, (ii), the important differentiations occur during the lower secondary course, when pupils are allocated either to different types of schools, as in the United Kingdom or to different study sections inside the same school, as in France. Repeating is frequently an additional method of differentiation. The establishment of comprehensive schools (catering, however, for only a proportion of the age group, as in the United Kingdom) or observation and guidance cycles, (as in France), have encouraged standardisation designed to postpone the age at which pupils are streamed. Nevertheless, streaming tends to occur at this level, and is often definitive for the majority of pupils.

A recent study of pupil flow in secondary education in France(1) describes the selection process, which may be briefly summed up as follows:

(1) "Etude statistique des flux d'élèves dans le second degré des enseignements publics et privés", Etudes et documents, No. 23, ministère de l'Education nationale, Paris, 1971.

Out of 100 pupils in an age group (average figures for 1969)

90 enter lower secondary education about the age of 11
(10 are retarded or in special schools)

68 out of the 90 enter Sections I and II, leading to a long course of study
(22 being oriented towards other sections, of whom less than 5 will be re-oriented)

34 enter upper secondary education around the age of 15

20 obtain the baccalaureat.

In the third model of secondary education, (iii), internal differentiations occur at about the age of 14 or 15, after the comprehensive lower secondary course for all pupils. Instruction at this level is provided in schools designed for the purpose (the Scuola media in Italy, the Chugako in Japan) or follows on and dovetails in with primary education in a single 7, 8 or 9 grade comprehensive school (Denmark, Sweden, Norway, Yugoslavia). Pupils are offered different options during the last year of study, and their choice frequently determines the stream they enter in upper secondary school. There are usually two or three streams, depending on whether the curricula are general or technical, preparatory to higher education [type (a)], or vocational and terminal, [type (b)]. Except in Japan, and in Sweden since 1971, such education is provided in separate schools, each offering a specific course of study.

It was during the Sixties, except for Japan that this type of organisation was adopted. The introduction of a common core of subjects lasting eight to nine years made it possible to do away with streaming at too early an age, and brought about a very rapid increase in the flow of pupils entering upper secondary school, as is shown by the following examples:

Table 2

Percentages of an Age Group acceding to Upper Secondary Education

	Total, upper secondary education	of which type (a)
Norway 1957	33	12 Gymnasium
1968	65	29
Sweden 1960	45	19 "
1970	74	32
Japan 1960	58	57 General
1970	82	59 sections (1)

(1) The majority of vocational sections also lead to higher education.

Source: Publications of National Statistics.

Lastly, in type (iv), primary and secondary education in the United States and in Canada are organised into a unified comprehensive structure, at least up to the beginning of the last year of study. Automatic transfer from one grade to the next, and the existence of curricula consisting mainly of common subjects, obviate hard and fast differentiation into streams. In the last grade, attended by 75 per cent of an age group in 1970, pupils choose among different subjects. Their choice and performance frequently determine whether they cease their studies or continue, and in the latter case they determine the type of higher education establishment.

This classification into types illustrates the variety of the organisational patterns of secondary education and the role played by structural differences in the selection of students. It also reflects a marked tendency to move away from traditional elitist systems which are compartmented and selective, towards more open, flexible and comprehensive systems, though there are some exceptions. For example, the dual structure typical of secondary education in Europe has never existed in the United States.(1) Again, the relationship between the scope of differentiation and the rigorousness of selection, though clear, is unsystematic in as far as the process involves some criteria which are not related to the organisation of studies.

Selection criteria. Whatever the organisation of the education system, selection is officially conducted solely on the basis of aptitude criteria. Many studies, to which it is unnecessary to refer(2), have shown that guidance, grade-repeating and dropouts are governed by social criteria, and that success at school is always correlated with and dependent upon socio-economic background. Relevant statistics(3) show that children from privileged socio-economic backgrounds are mostly guided towards long courses leading to higher education and therefore into schools which provide non-specialised education or into those having very highly qualified staff. A few children from different socio-economic backgrounds may make the same choice, but they are very likely either to be eliminated or to be held back. The great majority of them go in for short technical vocational courses which limit the subsequent choices available and frequently make it impossible to continue into post-secondary education.

Table 3 provides an example of the diverging trends in Germany and France in the proportion of pupils and students from two types of social background, recorded at different stages in the process of access to university studies.

In recent years the growth of secondary education and the extension of the length of compulsory schooling have increased the average opportunities of acceding to (a) type secondary education, and reduced the effect of socio-economic background.

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(1) Martin Trow, "The Second Transformation of American Secondary Education", International Journal of Comparative Education, Vol. II, No. 2, September 1961.

(2) For a review of these studies see T. Husén, Social Background and Educational Career, CERI/OECD, Paris, 1972, Chapter 4.

(3) Group Disparities in Educational Participation and Achievement, Conference on Policies for Educational Growth, Volume IV, OECD, Paris, 1971.

The introduction of comprehensive courses and information and guidance programmes have changed the educational projects and aspirations of certain social groups, by increasing their preference for general education and encouraging them to continue their studies. This trend is particularly marked in countries which have introduced comprehensive schools. Nevertheless, as the following data for Sweden shows, social disparities remain very obvious when streaming takes place on entrance into upper secondary education. This indeed was one of the reasons for the 1971 reform.

Table 3

Trends in the Proportion of Students from two Socio-occupational Categories at Different Stages during their Studies (towards the mid-sixties)

Germany

	Gymnasium			University
	1st year	5th year	Abitur	1st year
University graduates	9	13	35	34
Workers	38	24	4	5

France

	Lycée			University
	1st year	5th year	Bacca-laureat	1st year
Professions and senior executives	7	15	32	32
Workers	35	25	10	10

Sources: Reviews of National Policies for Education: Germany, OECD, Paris, 1972.

Educational Policy and Planning: France, OECD, Paris, 1972.

Table 4

Sweden

Student Distribution according to Social Background after the 9th Year of Study (1970)

(Percentages)

	Gymnasium	Realskola	Vocational School	Other
Group 1 (upper)	82	10	6	2
Group 2 (middle)	46	21	21	13
Group 3 (lower)	25	21	34	20

Source: K. HÄrnqvist and J. Bengtsson, Educational Reforms and Educational Equality, Report from the Institute of Education, Sweden, 1972, Table 2.

Lastly, it is well known that in the United States, where upper secondary school is almost universal, the theory of virtual equality of access hides a considerable inequality of success, for this remains closely dependent on the socio-economic background and affects opportunity of access to higher education.

Admission to higher education and the transfer from secondary education

Statistics on the school background of students(1) show that access to higher education is almost always conditional on the students having obtained a secondary leaving certificate or diploma. Access is theoretically possible without a certificate or for those who take special entrance examinations, but the number of students admitted in this way is negligible. The different types of secondary education have different types of leaving certificate serving different purposes; all of them have considerable influence on the conditions and the real chances of admission.

Types of certificates. In secondary education systems which are universal and which have a unified structure [type (iv) above], courses lead up to a single leaving certificate, giving access to all types of post-secondary education. In all other cases [types (i), (ii) and (iii)], the dual structure means that access is reserved solely for holders of certificates of the (a) type. In addition, there are several sub-categories of certificates(2), corresponding to different secondary curricula, which largely determine entrance requirements for the various types and branches of higher

(1) Cf. Study I, op. cit., Table 20.

(2) In the United Kingdom the distinction is based on the number of passes at 'O' or 'A' level (2 or more 'A' levels for university candidates, and 5 'O' levels or 1 'A' level for other forms of higher education).

education. A distinction may be drawn between:

- general secondary leaving certificates, such as the Abitur, Baccalaureat, Studentexamen, attesting the general, non-specialised and often somewhat abstract knowledge required of candidates for university courses in general or for specific courses in science, literature, etc., depending on the options taken for the certificate.

- other secondary (a) type certificates of a technical, commercial or teacher training type which also give access to certain university courses (e.g. technology, the social sciences, educational theory and methods); their equivalence with the certificates mentioned above which has been recently recognised in several European countries, has broadened the opportunities of access to universities and has meant that students are recruited from more varied school backgrounds.(1) In most cases, however, holders of these certificates go on to non-university courses, either because there is a certain continuity between the curricula of short-cycle higher education and the secondary studies leading to these certificates, or because such certificates are not always recognised as being equivalent to general secondary leaving certificates.

Purpose of certificates. A further distinction should be drawn, depending on whether the sole purpose of these certificates is to attest the successful completion of 12 to 13 years at school, or of 7 to 8 years secondary schooling, or whether they combine two functions; that of a secondary leaving certificate and that of a certificate giving access to some or all types of post-secondary education. In the latter case they are a certificate of aptitude for higher studies. The purpose of the certificate also governs the way in which it is obtained: in the first case, it is obtained fairly easily on the basis of tests or teachers' assessments, or by totalling the credits or points awarded in the final years of secondary school; in the second case, it is obtained after rather more selective examinations, the pass rates for the Abitur and the Baccalaureat for example are about 65 per cent.

This twofold distinction may be used to formulate a classification for systems of access to higher education. This would be based on the links between secondary and university education, which links are clearly defined by the purpose of the secondary certificate. This is necessarily only a rough classification, since the historical development of the education systems of Member countries has resulted either in the proliferation of institutions with very varied entrance requirements alongside traditional universities or in the adoption of entrance procedures which differ from faculty to faculty.

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(1) Cf. Study I, op. cit., Table 20.

Two methods of access to higher education can therefore be distinguished, according to whether the final testing procedures are external to the system (secondary school leaving examinations) and complementary to the selection which takes place during the first years of higher education, or in fact take the form of university entrance requirements. Methods of access to short-cycle higher education seem to depend to a great extent on existing university entrance requirements and the functions performed by the universities.

Though not clear-cut, this distinction appears more apt than that which may be drawn between 'selective' and 'open' or 'free' admission systems, which overlooks the decisive role of secondary education and the function of the terminal examination. In real terms access to higher education is selective in all cases, but selection occurs at different stages: the terminal examination in (a) type secondary education; on entrance to university; during or at the end of, the first few years of the university course. Furthermore, the effect of selection at the moment of entry to university varies according to whether it is applied to all candidates, eliminating a proportion of them, or is limited to certain faculties, in which case the flow of students is modified without overall demand being affected.

1. University admission on the basis of passes in (a) type secondary leaving examinations

This system obtains in most of the continental European Member countries and is the subject of great controversy, as we shall indicate below when describing the arguments for and against selection. It is based on the principle, which is sometimes guaranteed in the constitution, of free access to university for all who meet entrance requirements, in other words those who hold the (a) type secondary leaving certificate or its equivalent. By virtue of this principle, practically all who obtain such a certificate go on to university, as is shown by the very high transfer rates, which varied very little during the Sixties.(1)

In some cases certain faculties impose special requirements and this tends to limit the students' freedom of choice among different branches of studies. These requirements, however, represent not so much a limit on overall demand as a set of measures which distort the allocation of new students among the various branches or faculties. In most cases, preferences for technological or medical studies which lead to a specific profession are discouraged in favour of the humanities, social sciences or law, which are easily accessible for holders of (a) type certificate in all countries.

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(1) Cf. Study I, op. cit., Table 24.

Several forms of restrictive conditions can be distinguished by the way they operate and the effect they have. The first of these are linked to the existence of a few highly selective institutions applying a numerus clausus. This is the case with institutes of technology (Belgium, Spain, France) and the 'closed' faculties in Scandinavian countries. In Sweden and Norway, 25 per cent of students are enrolled in these faculties. Admission is based on performance in the final secondary examination and very rigorous additional tests: in Norway only 30 per cent of applicants were successful in 1971, 16 per cent in medicine. Similar restrictions have been placed on access to medical courses in France, the Netherlands and Germany, and their extension to other branches of study is being discussed.

Other additional conditions consist of making the choice of university course dependent upon performance in the final secondary examination or on the subjects studied at the secondary level.

Entrance requirements for short-cycle higher education are bound up with those of the universities. In many cases establishments have been created(1) to provide short post-secondary courses for holders of a specialised secondary leaving certificate and to train intermediate professional staff. The often highly-specialised nature of the curricula offered by these establishments means that entrance requirements are frequently more restrictive than those of the universities; cases in point are the Fachhochschulen in Germany and the IUTs in France, to which only 60 per cent of candidates gained admission in 1971. This situation undoubtedly has a bearing on the decrease in the number of new enrolments in these courses during the Sixties.(2)

2. University admission based on selection procedures at entry

In a second group of Member countries (non-European countries and the United Kingdom, Ireland, Finland and Yugoslavia) the secondary leaving certificate is a necessary condition, but not sufficient in itself, for access to university or an equivalent institution. Admission is by selection procedures with a wide range of requirements and effects, varying from country to country and from one institution to another; they may include school achievements, teachers' recommendations, aptitude tests, recruitment by competitive examinations, etc.

In the United Kingdom for example, each university as an autonomous body recruits its own students on the basis of the number of places available in each faculty and department. This in turn depends on the physical resources and teaching staff available. The student must satisfy both the 'General Requirements' for universities as a whole (GCE with 2 or more 'A' levels, in the particular options)

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(1) Towards New Structures of Post-Secondary Education, OECD, Paris, 1971, Part II.

(2) Cf. Study I, op. cit.

and the 'Course Requirements' laid down by each university, which vary from department to department. Aptitudes are assessed on the basis of the head teacher's recommendation, school achievements and interviews, and in the case of certain Oxford and Cambridge colleges, there is a competitive entrance examination. In 1971, 48 per cent of the applications processed through the Universities Central Council of Admission were successful.(1)

In Japan, a very strict system of control is applied and two-thirds of the universities organise entrance examinations which give rise to fierce competition among the candidates. In 1967, 25 per cent of candidates were admitted, a quarter of them after several years of preparation.(2)

In the United States and in Canada selection is usually based on performance in national examinations and aptitude tests drawn up by the United States College Entrance Examination Board and the Educational Testing Service, and the Canadian Scholastic Aptitude Test Service. In certain cases students' ratings based on their performance in the examination for the High School Certificate are taken into account (for example in the University of California). A classification into five levels of accessibility of establishments in the United States providing four-year courses and combining various entrance requirements shows that 85 per cent of them are selective, and 20 per cent very difficult to enter.(3) It may be observed that the transfer rates for high school graduates to these establishments remained constant at 40 per cent throughout the Sixties.(4)

One feature of short-cycle higher education in these countries is that the conditions of access are very liberal, and the curricula highly varied: 92 per cent of the public Junior Colleges in the United States are 'open-door'(5), while in Japan entrance requirements are not exacting. The result has been a growing intake of new students and enlarged opportunities for higher education for students from groups which are not well represented at the university level.(6)

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(1) "Access to University in the United Kingdom", Committee of Vice-Chancellors and Principals, 1972.

(2) Educational Policy and Planning: Japan, OECD, Paris, 1973.

(3) W.W. Willingham, Free-Access Higher Education, College Entrance Examination Board, New York, 1970.

(4) Cf. Study I, op. cit.

(5) Free-Access Higher Education, op. cit.

(6) Cf. Study I, op. cit., Table 18.

3. Socio-economic factors in admission to higher education

The inequalities of access to higher education according to social and geographical origin have been described in numerous studies.(1) The most recent data indicate that the opportunities for young people from under-privileged social backgrounds increased noticeably during the Sixties but that great inequalities still exist, particularly as regards access to universities; for example between 1960 and 1970 their chances of access by comparison with young people from more privileged social backgrounds rose from an average ratio of 1 to 58 to 1 to 12 in Germany, from 1 to 84 to 1 to 28 in France, from 1 to 8 to 1 to 5 in the United Kingdom, from 1 to 9 to 1 to 5 in Sweden, etc.(2)

The more elitist the character of higher education the more obvious the extent of the inequalities, but they depend also on the social stratification peculiar to each country and on the levels at which selection takes place. In most of the European Member countries social selection takes place mainly at the level of secondary education. Transfer to higher education does not appear to emphasize the existing differences in participation according to social background - as shown by the examples of Germany and France (Table 3).

Data for the United States(3) and for Canada(4) on the other hand show that the probabilities of high school graduates continuing their studies are closely bound up with levels of ability, or with social or geographical origin; given equal levels of ability, the chances of going on to college for students from the more privileged socio-economic backgrounds are two or three times greater than those of less privileged students.(5) These differences are even more pronounced in Japan. In all cases the effects of these social factors are further aggravated by financial obstacles; in the United States, for example, 30 per cent of the high school graduates deciding not to continue their studies gave the high cost of study as the main reason for their decision.(6) In Japan this is the case with 20 per cent of boys and 40 per cent of girls with the necessary ability.(7) Annual fees charged by private universities in these two countries amount to the equivalent of 20 per cent of the average family income, and compensation by means of grants is very unequal.(8)

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(1) Group Disparities in Educational Participation and Achievement, op. cit.

(2) Cf. Study I, op. cit.

(3) L. Medsken and J.W. Trent, "The Influence of Different Types of Public Higher Institutions on College Attendance from Varying Socio-Economic and Ability Levels", Center for Research & Development in Higher Education, University of California, Berkeley, 1965, p.24; and M.J. Bowman and C.A. Anderson, "Mass Higher Education: Some Perspectives from Experience in the United States", OECD document, 1973.

(4) R. Pike, "Ceux qui n'iront pas à l'université et pourquoi" (Those that will not go to universities and why), Association des universités et collèges du Canada, Ottawa, 1971.

(5) "Project Talent", quoted by R.H. Berls, "Higher Education Opportunity and Achievement in the United States", in The Economics and Financing of Higher Education in the United States, Joint Economic Committee, 1969, p. 148.

(6) L. Medsken and J.W. Trent, op. cit.

(7) Educational Policy and Planning: Japan, op. cit.

(8) "The Cost and Finance of Post-Secondary Education", Study IV of the present publication.

Quite apart from the way in which earlier selection procedures operate, the choice of type or branch of higher education is also conditioned by social criteria and tends therefore to create new forms of discrimination. An example here is that of sex discrimination: over and above the fact that girls have much poorer chances of access(1), it is noticeable that they are practically excluded from certain branches such as technology, and tend to prefer short courses or the humanities. With regard to social background it has been shown(2) that a greater proportion of students from privileged socio-economic groups go on to university courses, particularly in medicine and law, their choice being frequently determined by their studies at the secondary level. Students from other social backgrounds show a preference for sciences or the humanities, and above all for short courses.

The factors involved in these different structures of choice are well known.(3) Some are economic: for example, the preference of less-privileged students for short courses can be attributed both to financial hardship and an awareness of the risks involved in long courses, which are more extensive and less obviously vocationally oriented.

Other factors are of a more complex nature, and appear to be related to the different ways in which students perceive various types of study depending on their social background. An example here is medical studies, which have a reputation for being long, difficult and reserved for the socially privileged. Subjective assessments, such as these, of the chances or expectation of success depending on the social or cultural background probably reflect systems of values, standards or beliefs which evoke the hierarchies and the allocation of functions and roles as between different social groups. In turn they create different outlooks and aspirations with regard to school and university, depending on the social milieu. A very obvious illustration is the sex-differentiated choice of studies, which can be explained by the belief that abilities and aptitudes are not equally distributed between the sexes (women being supposedly less gifted for abstract or technical subjects) and by prevailing social practices as regards the distribution of work between the sexes. These practices themselves help to create specific conditions on the labour market, such as fewer opportunities for women in particular careers or sectors, and, in their turn, these conditions influence the choice of studies and thus maintain or reinforce the divisive process.

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(1) They represent 25 to 40 per cent of new enrolments, whereas their chances of obtaining an (a) type secondary leaving certificate are the same as for boys. See Development of Higher Education, 1950-1967: Analytical Report, OECD, Paris, 1971.

(2) Group Disparities in Educational Participation and Achievement, op. cit.

(3) ibid.

II. PRESENT AND FUTURE PROBLEMS OF ADMISSION POLICIES IN POST-SECONDARY EDUCATION

The heavy pressure of demand on secondary and post-secondary education in the OECD countries over the last 15 years(1) has radically affected the operation of the processes by which students accede to higher education. It has also created certain strained situations which will be briefly described below. A number of measures have been introduced, but in most cases they appear to have had only limited effect. Yet in the future the potential demand by young people and adults will continue to grow.(2) It seems essential therefore to define basic principles and conditions for a new admission policy, and to introduce thoroughgoing changes. Many of the Member countries are at present discussing what these changes should be. Obviously they will vary according to the country, to existing admission systems, to the way in which studies are organised and according to the stage of educational development. To this end a distinction should probably be made between: European countries in which the changeover from an elitist to a mass system focuses the problem on future selection, from among students coming from secondary school whose development is in full swing, or of adults wishing to go on to higher education; and countries such as the United States or Canada whose education system has developed to the stage of catering for all, and where discussion turns on 'open' admission and access for new categories of students.

The general situation created by the increase in enrolments and admission problems

In those Member countries (mainly European) in which universities have limited means for screening applications and adjusting enrolment capacity to demand, the situation tends to be characterised by:

- overcrowding at universities(3), leading to a decline in the quality of services, and disorganisation in running and management;

- unsatisfactory student guidance, based on entrance facilities or university prestige rather than on students' real preferences, employment opportunities or requirements for highly skilled personnel;

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(1) Development of Secondary Education, OECD, Paris, 1969 and Development of Higher Education; Analytical Report, op. cit.

(2) Towards New Structures of Post-Secondary Education, op. cit., Part 1; and Study I, op. cit.

(3) The effects of overcrowding or congestion are a typical feature of 'divisible community services' such as public transport, hospitals, roads, education, where consumption is dependent on explicit consumer demand. Great demand and limited supply rapidly create a border-line beyond which even a marginal increase in consumption has negative effects and causes a deterioration in the quality of the service. When saturation point is reached the result is congestion leading to the application of external economics of which the consumer is at one and the same time the cause and the victim. Two solutions are then possible, either to increase productivity (including increased resources for the production services) or to limit demand, by excluding certain customers. Exclusion is often effected by introducing charges, for example tolls on motorways. This form of control is rare in the case of education, except for a few private institutions; the criteria more generally used here are institutional (entrance examinations, academic performance, etc.), in other words, selection.

- the existence of a system of selection by failure, in as much as students are eliminated, or withdraw towards the end of the first few years of study (such failures may exceed 50 per cent)(1);

- the impossibility of keeping the development of the system under control and of planning and forecasting equipment or personnel requirements, adapting student guidance to manpower needs,(2), etc.

A number of measures have been introduced to remedy this state of affairs, and they may be divided into those designed to change actual entrance requirements and other measures such as increasing the number of places available, restructuring courses, etc.

- Selective mechanisms have been introduced progressively, though only in certain branches of study, and they have had the effect of deflecting unsatisfied demand towards 'open' disciplines such as the humanities and social sciences, thereby increasing congestion in these disciplines and producing numbers of graduates far in excess of the openings available.

- A considerable effort has been made to increase enrolment capacity. The first stage was to increase the capacity of existing institutions or create similar ones geographically distributed in such a way as to reduce regional inequalities; but structural changes were often limited. Towards the mid-sixties several countries set up new types of establishment: new universities became centres for innovation and experiment,(3) and helped to increase the number of places available. New short-cycle institutions made it possible to diversify courses, widen the geographical and social basis of recruitment and meet the socio-economic needs of local and regional communities.(4)

- Until about 1968 any reorganisation of studies with a view to adapting them to the increase in student numbers was on a very limited scale, except in Yugoslavia(5). Often such reorganisation consisted of reinforcing selection during the first few years of study, by overloading curricula or checking students' work more strictly, while leaving entrance requirements unchanged.

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(1) Development of Higher Education, Analytical Report, op. cit., Chapter VI.

(2) "Educational Policies, Plans and Forecasts" in The Development of Educational Planning, Volume VI, Conference on Policies for Educational Growth, OECD, Paris, 1971

(3) Innovation in Higher Education: New Universities in the United Kingdom, OECD, Paris, 1969.

(4) Towards New Structures of Post-Secondary Education, op. cit., Part Two.

(5) Innovation in Higher Education: Reforms in Yugoslavia, OECD, Paris, 1970.

The effect has been very limited in scope, as is shown by the reform of courses in the humanities and sciences in France in 1965.(1)

- Lastly, various attempts have been made to guide students anew where they appear to have been mis-oriented, or at least to align individual choices with foreseeable economic requirements. Student information and advisory services have been set up, and special aid programmes introduced for students taking certain courses. Priority has been given to the construction of science buildings in order to attract science students. Little has come of these measures, as may be seen from the systematic gaps recorded between enrolment estimates for each branch of studies and actual data(2), and the relative unpopularity of studies in science and technology.

Universities which make their selection on entrance (non-European countries, the United Kingdom, Yugoslavia) have on the whole been in a better position to withstand the pressure of numbers, and have succeeded in avoiding overcrowding. The majority of them have reinforced their selection criteria; for example in the United States, 75 per cent of students were admitted by selection in 1965 as against approximately 50 per cent towards 1955. In Japan, 17 per cent of candidates taking entrance examinations were admitted in 1970, as against 25 per cent in 1968, showing that there had been a marked increase in competition and social pressures on families and students.(3) These measures made it possible to draw off excess demand towards institutions with less prestige, and therefore easier of access, and particularly towards short-cycle courses, the spread of which has been one of the most noticeable features in recent trends.

Over and above these dysfunctions, the increase in demand has created a number of more fundamental problems which are to a great extent common to all admission systems:

- The regulating of demand and the restrictive measures made necessary by the shortage of places seem to have reinforced further the prestige ranking of universities, based more less directly on their degree of selectivity. At the top of the scale come the elite institutions, which the others (short-cycle or non-traditional) try to imitate. The scale of values thus maintained makes it difficult, particularly in Europe, for the latter institutions to develop in their own right, and influences students considerably in their choice of studies. Retention of a highly selective elitist sub-system meets the need to maintain the quality of education and concentrate research activities, but it also nourishes the systems of traditional standards and values.

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(1) Innovation in Higher Education: French Experience before 1968, OECD, Paris, 1970.

(2) Development of Higher Education: Analytical Report, op. cit., Chapter VII.

(3) Educational Policy and Planning: Japan, op. cit.

- Methods of admission continue to operate as if the student population were as homogeneous in its preferences, aptitudes, expectations and basic knowledge as was the minority selected by traditional academic secondary schools. The application of uniform standards for admission is not compatible with the diversity of student populations. The end result has been an ever-widening gap between students' expectations and aspirations on the one hand, and the actual educational realities and employment opportunities on the other.

- The admission of greater proportions from each age group has helped to diminish social inequalities in participation. It is to be feared that this may lead to a false democratisation whereby students from underprivileged groups are guided towards short courses, or those having little prestige, while the social base of recruitment to elite institutions remains unchanged.

- Lastly, the rapid growth of post-secondary education over the last 15 years has created differences between the levels of education and qualifications of young people and those of adults. Adults are likely to be at a disadvantage in competing with young graduates when it comes to promotion or changing occupations. The generation gap is emphasized by the way in which existing admission systems either exclude adults, or consider school qualifications to be the only ones that count.

This brief review leads to the conclusion that there is a gap or rather a time-lag between the problems arising from the recent growth of higher education systems and the terms of admission which, with very slight variations, are those which obtained before the recent phase of development began. This state of affairs is particularly obvious in the European Member countries, and calls for changes which will be studied below.

Admission to mass education in European Member countries and the problem of selection

In so far as terms of admission are the most widely favoured device for adjusting demand to supply, it might be imagined that they would need to be reformed before the introduction of any other changes. Yet it is noticeable that access to higher education is one of the outstanding institutional problems in most European Member countries. It has become clear that to question the liberal rules governing access to university would be to run counter to the objective, based on the principle of freedom to study - in some cases constitutionally guaranteed - or satisfying demand or even to the attempt to democratise education. At present it appears very difficult for the responsible authorities to avoid reinforcing selection to some extent, if they are to adjust certain imbalances and cope with the slow down foreseen in the increase of financial resources. A number of selective measures to which we shall refer, have been introduced recently in several countries, but the decision to extend them is a critical one, which has been strenuously opposed and is the subject of lively controversy.

1. The progressive introduction of selective measures for admission to universities

It is well known that several countries, for example Belgium, Spain and France, have, in addition to their traditional universities, institutions to which recruitment is highly selective (engineering colleges, etc.). Their primary function is not so much to train highly skilled technical personnel as to select an elite destined for managerial posts.(1) These elite institutions have been little affected by increasing numbers of candidates, since unsuccessful applicants are advised to try other universities. In the fifties the Scandinavian countries introduced, or intensified, selection for entry into certain 'closed' faculties (medicine, technology, agriculture), which took in 25 per cent of new entrants in 1970 as compared with 40 per cent in 1960.

In several countries additional requirements have been laid down for those applying to study pure science or medicine; a secondary leaving certificate containing science subjects is one example. These measures were justified by the need to recruit students with a better knowledge of basic subjects at a time when the scientific content of curricula was being intensified. They have been a further factor in restricting the choices available to students holding a non-scientific leaving certificate, and in changing the school background of students in these branches of study. In France, for example, in 1965 less than 10 per cent of first year medical students had taken their baccalaureat with a philosophy option, as compared with nearly 40 per cent before 1960.(2)

From 1968 onwards restricted entrance or numerus clausus was introduced provisionally in all German universities(3), for the faculties of medicine, pharmacy, architecture and psychology. It was not introduced generally in other faculties, but in 1971(4) it was applied in 23 cases out of 29 in biology, 13 out of 34 in chemistry, 9 out of 36 in mathematics, 8 out of 34 in physics, etc. For 60 per cent of places, entrance requirements are based on levels of achievement in the Abitur, to which various coefficients are applied depending on the discipline chosen or the Land from which the student comes. The remaining places are reserved for students who obtained the school leaving certificate some years previously, those in special social circumstances, and foreign students (10 per cent). The number of places available is determined by the Ministry of Education in each Land in the light of existing or newly-created capacity, the student/teaching staff ratio and timetables of courses.

In France, medical students have been selected since 1970 at the end of the first year of study, on the basis of the number of posts available in hospitals (students must do part of their training in hospital from the third year onwards).

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(1) In other countries (United Kingdom, Japan, United States) this function is performed by a small number of universities drawing their prestige from their seniority ('Oxbrige', Tokyo-Kyoto, the 'Ivy League').

(2) Development of Higher Education: Analytical Report, op. cit.

(3) In 1972 draft legislation was prepared embodying implementary measures. See "Staatsvertrag über die Vergabe von Studienplätzen" in Kulturpolitischer Informations dienst, November 1972.

(4) "Access to Higher Education and Numerus Clausus in the Federal Republic of Germany", Council of Europe, Strasbourg, CCC/ESR(72)68.

In 1971 more than one-half of students were judged to have failed this selection test. In several other countries similar measures have recently been introduced(1), but they are limited to certain courses or to certain groups of students. For example in Austria and in the Netherlands a numerus clausus has been applied in the medical faculties, and is also applied to all foreign students. In May 1972 the Swedish Parliament passed a law concerning new entrance requirements and including proposals for a numerus clausus drawn up by the Commission U 68.

2. Arguments for and against extending numerus clausus in universities

The above measures have had only a very partial effect in solving the problems arising from the admission of a growing number of students, and none has succeeded in adjusting student demand to the supply of places. They have often been restricted to certain disciplines or universities, and introduced as temporary measures. The question of extending them is under discussion but remains controversial.

Those who favour selection consider it justified by the limits to enrolment possibilities: the too rapid increase in demand makes it impossible to supply enough new places or to find enough teaching staff, manpower and management and equipment, particularly for courses in science, medicine and technology, where marginal costs are very high. Total demand could only be met if large sums of money were allocated and this would result in an unbalanced distribution of available resources or increased taxation. Selection appears the only alternative if one wishes to avoid wasting financial and material resources or jeopardising the quality of education. The maintenance and the improvement of the quality of courses, training and research are invoked as grounds for excluding students who are considered incapable or lacking in motivation, since they add to overcrowding in the universities and keep back better students. Selection on entrance, on the United Kingdom or Japanese model, makes it possible to improve the returns on education by eliminating those who would probably drop out in any case; it thus avoids selection by failure, and its concomitant frustrations. Moreover, a recognised official numerus clausus based on a precise calculation of enrolment capacity and a rigorous definition of selection criteria makes it possible to put an end to current indirect or emergency measures which have either little or negative effects. The argument for rationalising selection methods has been put forward by Germany.(2)

The proponents of selection also contend that it is a way of regulating the number of admissions in each branch of study according to the number and nature of employment opportunities expected, of avoiding surplus graduates and of planning educational development. As is well known, it is the principle of planned selection which underlies admission policies in the socialist countries of Europe. In several Member

(1) "Access to Higher Education and Numerus Clausus", Council of Europe, Strasbourg, CCC/ESR(72)23.

(2) D.J. Fischer, "Problems of Access to Higher Education in the Federal Republic of Germany", Council of Europe, Strasbourg, CCC/ESR(71)6.

countries the criterion of the future need for doctors has been accepted for determining the flow of entrants into medical schools (one doctor for 625 inhabitants in Germany, 1 for 450 in France in 1980). A final argument, advanced in Sweden, is that selection on entrance makes it possible to redistribute opportunities of access among age groups by setting aside a proportion of places for adults; selection may be used as an instrument of 'positive' discrimination for ironing out some of the inequalities of participation.

The opponents of selection - who include the majority of students(1) - view it as a form of malthusianism which jeopardises the principle of freedom of study and runs counter to the democratisation of higher education, in that all forms of selection are biased against less privileged students. They suspect the proponents of selection of wishing to maintain or return to an elitist system, and of denying the realities of mass education, either because of their conservative outlook or because they are afraid of the socio-political risks inherent in too large a number of students. They thus challenge the validity of the arguments in favour of selection.

They also reject the argument that places and resources are scarce or not properly used, on the grounds that total resources should reflect the preferences of the State, whose duty is to meet the demands of families, since it is they who actually pay. Further, higher education is enriching both for the student and for society. Even when it does not lead to a degree or to the profession hoped for, it does not involve any waste of resources. The argument in favour of screening students' aptitudes and keeping up the quality of education is criticised, firstly in that there is no way of accurately forecasting whether a student will be fit for higher education or not; secondly, in that the notion of quality is regarded as highly relative, since it is based on widely-varying standards - such as the student/teacher ratio or teachers' qualifications - which are dependent on available resources and the vitality of the institution attended.

Adjusting the number of degrees awarded to requirements for graduates is rejected as reflecting a narrow functional view of higher education. It is emphasized that forecasts of requirements are full of uncertainty, as is the increasingly imprecise nature of the relationship between education and employment. Lastly, selection is often the result of hidden pressures from professional bodies (doctors, engineers, architects) anxious to limit the supply of graduates in order to maintain their relative scarcity on the market and consequently assure them of an income.

3. Bases for a new policy of access to post-secondary education

The development of new terms of admission to higher education is not, as the

(1) While most students and student organisations say that they are opposed to selection, it is not surprising to note that those admitted by means of a selection system consider it justified (for example 81 per cent of students in IUTs in France). cf."Students in University Institutes of Technology in France", OECD document, Paris, 1973.

discussion about selection might suggest, merely a question of altering the criteria at present applied to new entrants. If the problem is to be formulated more rigorously and as a whole, other issues, which may be grouped together under three headings, should also be examined:

(a) Future 'conditions of admissibility', or the problem of the qualifications required for admission to post-secondary education.

(b) Determination of enrolment capacity and the introduction of numerus clausus.

(c) The qualifications required, and the choice of selection methods.

(a) Conditions of admissibility

Certain measures introduced during the sixties were aimed at making the conditions for access to higher education less stringent by opening universities to holders of non-general secondary leaving certificates or to those without certificates who had passed a special examination. In most cases, however, the possibilities of access remained purely theoretical. Less stringent conditions have not altered the effect of the dual structure which channels holders of general leaving certificates on to university, and the majority of the rest on to short-cycle higher education (excepting countries where such courses have barely been introduced, such as Austria and Italy). A special examination is a means of access used by a negligible proportion of students (less than 3 per cent). The only original experiment on these lines, carried out in Yugoslavia, failed to achieve the desired result. From 1960 onwards a university education was made available to "persons over 18 years of age, without the prescribed secondary education, but with a certain amount of practical experience, provided they pass the University Entrance Examination or in other ways demonstrate their knowledge and ability to follow an academic course".(1) In 1962, 7 per cent of new full-time students and 24 per cent of those in two-year colleges of higher education (Visa Skole) were recruited in this way, but as a result of "cases of abuse of this rule" intake was reduced in order "to emphasise quality as against quantity", though "the principle remains valid".

It may be assumed that despite the adoption of these measures, actual terms of access are largely in accordance with the traditional principle that it is a secondary leaving certificate which confers admissibility to post-secondary education (and in the case of many universities, only a non-specialised certificate). It can however also be assumed that during the present decade a trend will emerge in favour of less stringent, more flexible requirements than those at present in force. The existing system, under which entrance to higher education is dependent on obtaining certificates which attest knowledge acquired in certain branches and which are conferred at the conclusion of a selection process, might well be radically altered as a result of:

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(1) Innovation in Higher Education: Reforms in Yugoslavia, op. cit.

(i) the development of secondary education and reforms in the upper cycle;
(ii) the access of adults to post-secondary education.

(i) The development of secondary education

The socio-economic factors which account for the increased demand for secondary education are likely to continue to make themselves felt during the 1970s. Growth might even be stimulated by the structural reforms envisaged, or currently being implemented. These reforms are within the context of changes already introduced with a view to establishing a single comprehensive school at the lower level in countries where differentiations, inherited from the traditional system still exist at this level. It is, however, in upper secondary education that the most decisive structural changes are to be expected. The reform adopted in 1971 in Sweden, and the projects being discussed in Germany and Norway, are an advance indication of the nature of such a reorganisation, which will have decisive effects on access to post-secondary education.

The Swedish reform(1) introduced the integration of former parallel streams with different purposes (Gymnasium, Realskola, vocational schools) into one single type of comprehensive or gymnasial school. The result was the creation of 22 two- on three-year streams, the aim being to bring about progressive differentiation of content after a common core, to reform vocational education and to familiarise students with working life. One effect of the reform should be to help to eliminate the social influences which previously determined what branch of study was chosen. The choice as between the 22 streams will be made on the basis of students' preferences and of requirements for skilled personnel. In accordance with a recent official proposal, all sections of the integrated schools will offer the general conditions for access to higher education.

Projects in Germany and Norway are along the same lines. In Germany, the project drawn up by the education planning Committee (BLK)(2) takes up the idea of a lower secondary comprehensive school (level I) with a vocational training component. Level II will provide a variety of branches of general and vocational courses (full-time or with a firm, or a combination of the two) enabling all students to accede to post-secondary education. In Norway(3), the School Committee of 1965 suggested a pattern allowing pupils on completion of nine years' schooling to choose either a basic one-year course providing vocational training and elements of general education, followed by one or two years' vocational courses, or a two-year course of general education followed by one year's specialisation or by intensified general education. These two options, combining general and vocational education, will be available in integrated schools which are widely accessible for adults.

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(1)"The Educational Needs of the 16-19 Age Group: Country Reports",Council of Europe, Strasbourg, CME/HF(73)1.

(2) Reviews of National Policies for Education: Germany, op. cit.

(3)"The Educational Needs of the 16-19 Age Group: Country Reports",op. cit.

The principles underlying these reforms of the upper secondary cycle are as follows:

- the standardisation of courses at this level, leading to the award of a school leaving certificate;

- the integration of general and vocational education by introducing practical courses in the general streams and by intensifying basic education in the vocational ones;

- the opening up of all these streams to pupils from comprehensive schools;

- the granting of general terms of admission to post-secondary education to all students having completed the upper secondary cycle.

Whatever the branch of study, these reforms should make it possible to increase the proportion of an age group completing secondary education (estimated as 80 per cent in Sweden and Norway around 1980). By doing away with the system of hard and fast lines between general and vocational streams and providing openings for both on to higher education, they should reduce the effect of the determining social factors which influence choices made in higher education, though they will also increase potential demand considerably.

(ii) The access of adults to post-secondary education

In recent years in most European countries there has been a growing demand by adults or by young people no longer at school for higher education. Depending on the country concerned, their aims are either socio-cultural or occupational, and the demand is met in a great variety of ways. In several countries, it has been the custom for teaching institutions to provide part-time courses for adults, and new facilities have recently been created either in existing establishments or in new ones such as open universities. Entrance requirements are usually very specific. In Sweden since 1969 those without paper qualifications have been entitled to go on to higher education, provided that they are over 25 and have either been gainfully employed for at least five years or have otherwise acquired an equivalent level of knowledge (their numbers rose from 996 in 1969 to 2,300 in 1971). Some basic knowledge is required (in Swedish, English, mathematics, etc.) and may be acquired in preparatory courses offered by the universities. In the United Kingdom in 1972, 40,000 students were admitted to the Open University without any special requirements; whether they continue or not depends on their own progress.

It seems that in all of these cases admission is no longer linked to the holding of a secondary leaving certificate but rather to the candidate's actual knowledge, which may have been acquired outside school; yet it seems that in fact most of the adults at present admitted to higher education are those who hold a secondary leaving certificate.

In the future, the developments in secondary education - in particular the integration of the various upper secondary streams - and the widening of opportunities of access for adults will call into question the present close functional relationship between the two levels of education in the traditional system. The qualifications required for access to higher education will then depend on the candidate's real proficiency and knowledge, and possibly his motivations and occupational experience, and not, as in the past, on the possession of a certificate conferred on completion of a specific school course. In line with Swedish terminology(1), a distinction may be drawn between real qualifications linked to the ability to benefit from higher education and the formal qualifications required for certain courses, sub-divided into general qualifications corresponding to a certain level of basic knowledge and special qualifications corresponding to specific knowledge in specific fields.

All the changes that have occurred or are expected to occur as regards the structure of secondary education and opportunities of access for adults (as well as the amplification or redefinition of what is meant by 'qualification') will inevitably result in a considerable increase in the potential demand for access to higher education, particularly to certain university courses. One must refer to the future size of this demand when looking at the problem of enrolment capacity and the possible introduction of a numerus clausus.

(b) Determination of enrolment capacity and possible introduction of numerus clausus

The introduction or extension of numerus clausus seems an inevitable decision in cases where the demand for places exceeds supply, which is probably already the situation, or likely to be so, in the majority of Member countries. The problem should be tackled either as a whole, as with the reform introduced in Sweden(2), or else in certain branches of study, mainly at university, as is the case in other countries. Any decision is conditional on a choice which must be made by national authorities in the light of the specific situation in each country, in particular the enrolment capacity available or planned for the future.

Available enrolment capacity, which covers facilities, equipment, teaching personnel and the financial resources available for operating expenditure, is also the result of political decisions as to the allocation of resources to this sector, and this reflects the preferences and choices of the State and the pressures exerted by certain groups, such as teachers, students and families. Three major criteria should be taken into account in determining future enrolment capacity and in conse-

(1) "Ways Towards Higher Education", Report by the Qualification Committee (KU), Ministry of Education, Stockholm, 1970.

(2) "Admission Policies in Swedish Post-Secondary Education", OECD document, 1972, (mimeo.).

quence, in deciding on the possible introduction of numerus clausus where the demand for admission exceeds supply. Two of them, the resources to be allocated and the needs of the labour market, are economic; the third concerns the structure of education.(1)

Available resources may be a constraint on the increase of the absolute enrolment capacity (for example a shortage of teachers), and more frequently on that of the relative capacity, this being the outcome of certain budgetary choices. In the first case, the temporary introduction of selective measures is essential if increases in the student/staff ratio are to be avoided. The second case relates to a situation in which the authorities consider it necessary to limit the total financial resources allocated to this sector; or to be more precise, to put a brake on the rate at which they increase. The considerable increase in expenditures recorded over the last 15 years(2), and the limited possibilities of reducing unit costs, suggest that many Member countries are already or will shortly be faced with such a situation. Where it is unlikely that demand will slow down, a limit on the supply of places seems inevitable if a certain level is to be maintained in the quality of teaching services. The limit may apply only to courses requiring a very high input of resources per student (medicine, technology, pure science), or be extended to the whole system in order to avoid serious imbalances as it expands.

Limited requirements for skilled personnel and the fear of an over-production of graduates in certain sectors have been invoked as reasons for limiting the number of places in higher education. The argument is backed up by the recent difficulties of young graduates to find their place in society, and by the fact that some of them are under- or unemployed. This proposal has given rise to controversy, and has met with several objections. Some of these are political, for example that a choice on these lines would reflect the view that the sole purpose of higher education is to train skilled personnel; others, of a technical nature, stress the flaws in present methods for forecasting manpower requirements and underline the frequent confusion between two notions, that of employment openings, based on projections of existing employment, and that of future employment needs, based on specific choices as to the future requirements of society (a notion which implies the creation of new occupational openings). The extremely loose links between training or the diploma taken, and different types of occupation, make it hazardous to determine the number of places or to introduce numerus clausus on the basis of future personnel requirements.

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(1) These issues will be discussed here only in so far as they are related to admission to higher education and are the subject of separate studies to which the reader is referred:

- Study IV, op.cit.
- "New Relations between Post-Secondary Education and Employment", Study III of the present publication.
- "The Integration of Learning and Research in Mass Higher Education: Towards a New Concept of Science", Study III of Structure of Studies and Place of Research in Mass Higher Education, OECD, Paris (forthcoming).

(2) Study IV, op.cit.

Lastly, enrolment capacity in a particular branch of study can only be determined with reference to certain course structures. In traditional systems characterised by the parallel existence of strictly differentiated courses which reflect a rigid division of knowledge (by discipline or on the basis of vocationally-oriented training) it is possible to determine the number of places available in each branch of study. With the introduction of integrated first cycles in higher education, freely combined course units ('credits'), and multi-disciplinary curricula, and the great diversification of courses(1) and access channels, it is possible to determine only the overall enrolment capacity - at least for the first years of study - restrictions being decided as it appears necessary by each individual establishment.

The nature of the restrictions which would justify the introduction of numerus clausus should be considered in relation to its possible consequences and its compatibility with the overall objectives of national education policies. There is a risk that any limitation of the number of places available may conflict with attempts to achieve equality of opportunity and help to maintain existing inequalities. It is worth noting that universities which screen candidates are always attended by students from the most privileged backgrounds. The impact of numerus clausus is chiefly dependent however on the way in which candidates are selected.

(c) The qualifications required and the choice of selection measures

This is certainly the most difficult problem to resolve, since it concerns the process whereby candidates are selected or rejected. It is precisely the validity of the selection methods used at present, entrance examinations, aptitude tests, school marking systems, for example, which is keenly contested.

A number of studies have shown that these methods have very imprecise results, and are of little value in forecasting a student's future performance; they also tend more often than not to aggravate social inequalities by eliminating certain groups of students. Docimological studies have brought out clearly the subjective and arbitrary nature of teachers' assessments of performance at school and in examinations. In Japan, studies by the National Institute for Education Research (NIER)(2) have shown that performance at the end of the first year of study is only very slightly correlated with the results of entrance examinations; this suggests that the correlation with first degree results will be almost non-existent. Studies conducted in the United States(3) conclude that proposed admission tests expose the candidates to the effects of chance

(1) Examples would be: reforms in Sweden; the organisation of first cycle higher education in France (DEUG); the projects for integrated universities in Denmark and in Germany. See Study III of Structure of Studies and Place of Research in Mass Higher Education, op.cit., and "Overall Issues in the Development of Future Structures of Post-Secondary Education", in Policies for Higher Education, Part One, op.cit., on the problem of diversification.

(2) Educational Policy and Planning: Japan, op.cit.

(3) A. Astin, "Racial Considerations in Admission" in The Campus and the Racial Crisis, D. Nichols and O. Mills (eds.), American Council on Education, Washington D.C., 1970.

which are inherent in the probabilistic nature of these tests, and that they have therefore a wide margin of error in the forecasting of future success. They do not help to indicate failure or drop-out rates, and appear wholly unsuitable where students from underprivileged social or etchnic groups are concerned.

In the light of such a situation, proposals like that of the Norwegian Royal Commission, which recommends the selection of students by drawing lots, appear less astonishing.

Most of the changes envisaged aim at avoiding a single selection test which often has a harsh, traumatic effect and gives rise to fierce competition among candidates. The intention is either to use several complementary measures, or to introduce different stages of evaluation and guidance for candidates, during which they would be able to judge whether it is worth while continuing into higher studies, and if so in which branch. In the final analysis candidates might arrive at a system of auto-selection.

The improvement of present selection methods will involve, on the one hand, the choice of the least controversial method(s) - and this on the basis of conclusions furnished by reliability studies - and on the other a more rational application of these methods. Studies conducted in Japan by the NIER reached the conclusion that the most reliable way of forecasting a student's future success on entrance is to note the evaluation of the secondary school teachers and to complement this with a very detailed aptitude test. Conversely, an entrance examination is the most unsatisfactory method and much less effective than one based solely on consideration of school achievements. Swedish studies on the predictive value of selection methods also consider school achievements a better indication than admission tests alone, and they recommend a combination of the two, until more detailed regulations have been defined. The Qualifications Committee (KU) has adopted this recommendation(1) and arranged for an aptitude test to be developed. Such a test should provide a yardstick for measuring highly varied qualifications which may be educational or occupational and take into account the fierce competition for entrance to certain branches of study.

A rationalisation of existing selection methods should also aim at eliminating arbitrary criteria and attempt to co-ordinate the decisions of individual institutions at the national level, by centralising applications and taking account of students' preferences. Measures on these lines were introduced in the United Kingdom with the creation of the Central Council on Admissions. In Sweden, the use of data-processing techniques has made it possible to improve the system of admission to 'closed' faculties and to adjust applications more closely to enrolment capacity.(2) More recent projects include the compilation and processing of detailed information for the selection of

(1) "Ways Towards Higher Education", op. cit. The Committee rejected the criterion of assessment by the candidate's secondary school teachers.

(2) "Admission to Schools, Colleges and Faculties with Numerus Clausus by Centralised EDP Systems" in Efficiency in Resource Utilization in Education, OECD, Paris, 1969.

candidates, not by means of a single choice, but by a series of decisions. In Findland a new selection system was introduced in 1971, following proposals by the Higher Education Board. It is based on standardised national tests, consideration of school performance and the desires and motivations of students. In addition co-ordinating and advisory committees have been created.(1) Proposals have been put forward in the United Kingdom(2) to improve, by means of interviews, information to students in order to reduce uncertainties as regards different choices, to take into account assessment by secondary school teachers, and to allow for a period of guidance and, if necessary, transfers from one branch of study to another.

The provision of different stages of student guidance and of the assessment of their abilities is included in the plans for the reform of higher education in Spain and in France. In Spain(3) all holders of the Bacnillerato will be entitled to enrol in a one-year preparatory course designed to improve basic knowledge and guide students either towards short courses or, following on a decision by the appropriate committee, to university. Article 20 of the 1968 French Guidelines Act (Loi d'Orientation) stipulates that universities will hold compulsory orientation courses for new students, on completion of which students may be recommended to choose other courses within the same university. Should the student persist in his original choice, and fail, he may be enrolled the following year in another orientation course, the conclusions of which will be binding.

The value of these proposals obviously varies widely, and will depend on the way in which they are applied and the groups of students involved; it can be assumed that their effects will be entirely different according to whether there is restricted entrance to certain branches of study, whether candidates are secondary school leavers or adults, whether there exists a widespread system of student aid, etc. The nub of the problem seems to be less the choice of screening methods than how to define selection criteria and identify the results to be expected from the methods used. As noted in the report of the Swedish Qualifications Committee, the problem has several dimensions and calls for several solutions. It is not only technical, but also social and individual. For example, the age and social background of candidates are already unwritten conditions of selection and screening, which have to be taken into account. The handicap they represent can be offset by the introduction of appropriate information and advisory measures and of financial assistance, not only on entrance to a higher education establishment but also during secondary schooling. Such measures should make it possible to provide students with information on which to base a rational choice in accordance with their inclinations and abilities, and also to surmount any cultural or financial obstacles.

(1) "Reform of the System of Student Selection for Admission to Finnish Universities", Council of Europe, Strasbourg, CCC/ESR(71)3.

(2) A.G. Davey and G.A. Randell, "Ways of Improving the Selection for Students", Universities Quarterly, No. 1, Winter 1971.

(3) La Educación en España: Bases para una política educativa, Ministry of Education and Science, Madrid, 1969, p. 225.

A further prerequisite to the introduction of new selection methods is a definition of the real or paper qualifications which are to be taken into account, and a determination of assessment criteria, which should vary according to the characteristics of different groups of candidates. One of the most difficult points will undoubtedly be an appraisal of adults' occupational experience and their motivations for study. The many criteria involved might lead to the introduction of a quota system as among different groups of candidates.(1) Within each group and by varying methods candidates would be assessed and classified in order of merit. A highly complex system of this kind would need to be tried out in advance and constantly revised, but it constitutes at present the most detailed project for screening entrance qualifications.

Towards post-secondary education for all: prospects for open admission in the United States and in Canada

In those Member countries in which post-secondary education has become mass education, admission is based on criteria of merit applied to high school graduates (75 per cent of an age group in the United States in 1970) and opportunities are based on their intellectual ability. Such a system does, however, uphold marked inequalities, which are the more noticeable for being not only social but racial and ethnic as well. It thus appears that one-dimensional scales for measuring aptitudes cannot satisfy the needs and aspirations of increasingly diversified and heterogeneous student populations. During the sixties discussion of equality of opportunity and of the recognition of the right of minorities to higher education led to the definition of an objective which remains a priority for the seventies; namely the provision of adequate educational opportunities and access to higher education for all young people who can benefit from post-secondary study, and in particular to encourage those from underprivileged groups to go on to such study. To achieve this objective a wide range of methods has been envisaged, and these should finally remove financial, psychological and geographical barriers and eliminate institutional obstacles arising from current entrance regulations; in other words, they should promote open admission.

In the United States this problem is the subject of a controversy, which is all the more lively in that behind the questions about admission criteria lies that of the very functions of higher education. It is also raised by the Report by the Commission on Post-Secondary Education in Ontario. The replacement of an admission system based on criteria of merit by a more flexible and egalitarian open system appears to be a necessary prerequisite for changing over in the seventies from a system of mass education to a system of universal education. It thus constitutes an important political choice.

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(1) In the Swedish project candidates are grouped together by the schools they come from and their qualifications; other criteria might be used, such as for example, sex, age or social background.

The following questions will now be considered:

- the issues raised by the discussion of open admission;

- the way in which existing open admission policies operate;

- the outlook for the future, including problems such as catering for new categories of students.

1. Issues raised by the discussion of open admission

The meaning of open admission is not always very clear. According to the Carnegie Commission(1), it should offer all high school graduates, and those with suitable qualifications, the opportunity of going on to post-secondary education. This definition is however subject to two riders which lead to a certain ambiguity:

- Open admission does not imply free access to all universities, curricula or courses, and does not exclude the maintenance of certain screening procedures. Hence it is necessary to distinguish between admission to the higher education system, which should be open, and admission to a particular university, which may be subject to certain restrictions.

- The definition does not imply that everyone should go on to higher education: the Carnegie Commission distinguishes in this respect between "universal access" and "universal attendance". It is however a fine-drawn distinction, since it depends on the nature of the criteria used by students in their choice and on social determining factors.

The arguments in favour of open admission are founded on doubts about criteria of merit and about existing selection methods:

(i) with the present admission system it seems impossible to promote equality of opportunity; statistics show that opportunities of access remain correlated with family income, for all students, even given the same level of ability; and that certain social, racial or ethnic minorities are considerably under-represented. This situation may be attributed to the fact that selection criteria are related to a system of cultural values which are foreign to the socio-cultural background of most young people from minorities, and therefore not suitable for an assessment of their aptitudes. Yet the hypothesis that the present admission system introduces a cultural bias does not seem to be borne out by empirical studies.(2)

(1) The Open Door Colleges: Policies for Community Colleges, Carnegie Commission on Higher Education, McGraw-Hill, New York, 1970.

(2) "Racial Considerations in Admission", op.cit.

(ii) The validity of admission tests is disputed as an objective yardstick of knowledge or aptitudes and as a method of forecasting success or failure. The results of tests such as S.A.T.s appear to be subject to a considerable margin of error or uncertainty. Studies by Astin(1) have shown that the pass rate during the first year at college has little correlation with the high school grades obtained ($r = + 0.51$) or with admission tests ($r = + 0.35$ for men, 0.43 for women). A combination of various selection methods improves the correlation only very slightly (0.07). In the same way, it is not possible with admission tests to forecast failure rates, which are very slightly correlated with the results of such tests ($r = + 0.17$)(2) Lastly, the probability of obtaining a B.A. or a Ph.D. is not directly linked either to the selectivity of universities or to the results of admission tests.(3)

(iii) Over and above these methods for screening qualifications, it is selection criteria which are a subject of controversy. It is argued that the present system works in such a way as to select and recompense students who have proved their worth, by conferring formal recognition on their future role. The intention is not so much to raise the level of students' knowledge as to further the success of the university. The proponents of open admission reject this elitist and meritocratic approach, and consider that the task of secondary education is less to select the best students than to try to develop students to the maximum or to increase the 'added value' of education, whatever the level of basic knowledge. From this viewpoint it is even arguable that it is the rejected candidates who need, and would most benefit from, higher education.

(iv) The Ontario Commission considers that universal access is justified on the grounds that education is an integral part of life, that it is essential to economic and social progress, and above all because higher education is financed by the community.

The opponents of an open admission system fear that it would jeopardise the traditional, or to quote Mr. Trow, "autonomous" functions of universities (the production of knowledge, the dissemination of certain values, the training of elite groups) and this in favour of the service functions and the dissemination of knowledge of a superficial (or, again to quote Mr. Trow, "popular") nature. As Sir Eric Ashby points out, the autonomous functions are the preserve of selective universities and graduate

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(1) A. Astin, Predicting Academic Performance in College, The Free Press, New York, 1972.

(2) A. Astin, "Productivity of Undergraduate Institutions", Science, Washington, No.4003, 1971.

(3) "Racial Considerations in Admission", op.cit.

schools, who are able to maintain their standards because of the existence of second-rate universities.(1) Open admission runs the risk of jeopardising the quality of education ('more means worse'), impairing the selection and success of elite groups who would be dispersed among the masses, lowering academic standards, debasing the value of degrees, creating a kind of "semi-drafted army of students", attracting under-motivated students who will inevitably fail,(2) and lastly threatening the variety and diversification of the educational facilities offered, for these are linked to the prestige ranking of universities. Most of these arguments are however rejected or disputed by the proponents of open admission.(3)

2. How the present policy of open admission operates

Strong pressure in support of equality of opportunity, and the right of all to higher education, were at the origin of a distinct trend in favour of an open admission policy which emerged towards the end of the sixties. In certain American states it has led to universal higher education; in California for example, 80 per cent of high school graduates go on to higher education, of which 8 out of 10 open door colleges (in 1968 the corresponding figures for the United States as a whole were 57 and 46 per cent).(4)

Four types of measures have been adopted, the effects of which are not yet fully known:

(i) An increase in the number of open door colleges, particularly the public community colleges, whose number has almost doubled since 1960, and in Canada new colleges.(5) Open admission, geographical dispersal and minimal fees are the reason for their rapid development. They cater for highly varied categories of students and offer a wide range of education facilities.(6)

(ii) Student aid measures. In the United States extensive federal programmes of aid to under-privileged students have been adopted in recent years, such as the 1965 Higher Education Act and the 1971 Higher Education Opportunity Act, designed to guarantee the necessary resources, in the form of scholarships, loans, work-study schemes, etc., for all students having

(1) E. Ashby, Any Person, Any Study, Carnegie Commission on Higher Education, McGraw-Hill, New York, 1971, p. 31.

(2) It appears that there is a total absence of motivation in about 1/6th of students in the United States.

(3) Jerome Karabel, "Perspectives on Open Admissions" in Educational Record, Winter 1971.

(4) Free-Access Higher Education, op. cit., pp. 204-206.

(5) C. Watson, New College Systems in Canada, OECD, Paris, 1973.

(6) L. Medsker and D. Tillery, Breaking the Access Barriers, Carnegie Commission on Higher Education, McGraw-Hill, New York, 1971.

the necessary qualifications and coming from families with an annual income of less than $10,000. The National Student Loans Association provides State-guaranteed loans to all students, whatever their family income. Similar programmes have been adopted in Canada.(1)

(iii) Planning. An effort has been made to co-ordinate admission procedures through the Statewide Plans and on the lines of the California Master Plan;(2) programmes have been drawn up for the location of new colleges and the expansion of existing ones; information about students (their background, choice of studies, mobility) has been centralised.

(iv) Numerous experiments in open admission have been tried out in universities.(3) One of the most original is that of the City University of New York (CUNY)(4) which intends to maintain a high level of education while keeping admission wide open to young people and adults by means of an extensive student advisory system, the use of new teaching techniques, the introduction of very flexible courses of varying duration, etc. New York State offers a wide range of evening classes open to adults with a high school diploma or those able to demonstrate their occupational experience. The classes are held in traditional colleges or in new institutions (universities without walls, the Empire State College, etc.), where a great variety of methods and media (television, radio, correspondence courses) allow for curricula to be highly specialised for each student in the light of his basic knowledge, needs and time available for study. Admission is not necessarily linked to secondary education, and the qualifications required, which are assessed by several criteria, may be acquired if necessary in preparatory courses. All these experiments, usually intended for highly motivated adults, foreshadow the future shape of recurrent education and the trend towards making the courses provided fit the individual. In other words, to quote the Carnegie Commission "any person, any study".

3. Future trends and their implications

These trends have emerged from the work of various commissions. For example, the Carnegie Commission assumes that between 1970 and the year 2000 the stage of universal access to higher education will be reached as a result of the following:

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(1) New College Systems in Canada, op. cit.

(2) E. Palola, "Statewide Planning and Students", in NASPA Journal, No. 2, October 1971.

(3) New Students and New Places: Policies for the Future Growth and Development of American Higher Education, Carnegie Commission on Higher Education, McGraw-Hill, New York, 1971.

(4) T.S. Healy, "Open Admission" in Barriers to Higher Education, College Entrance Examination Board, New York, 1971.

- The Community or Comprehensive Junior Colleges are the key to future development. In 1980 they will accommodate almost 50 per cent of new entrants. The creation of almost 300 new colleges should offer all prospective students, within reach of their home, a wide range of vocational, general and retraining programmes, transfers, employment advisory services, etc.(1)

- The last financial barriers will be removed, by the abolition of fees in the Community Colleges and the expansion of aid programmes.(2)

- A much more flexible system of admission and participation will be introduced, based on encouraging stop-outs and the return of adults to part-time education (external degrees, open universities, out-of-college higher education in firms or administration, etc.). A proposal to create a service guaranteeing assured instruction would give each individual the right to two years' higher education courses, to be taken at his convenience.(3)

(a) Catering for new categories of students

A policy of open or universal admission based on egalitarian criteria will produce an increase in total enrolments (60 per cent in 1970-1980, according to the Carnegie Commission)(4), and bring to the threshold of higher education new categories of students, both young people and adults, who are at present excluded by the existing criteria of merit. These new recruits (some of whom are already enrolled at Junior Colleges) differ from traditional college students in their socio-cultural background, age, income, interests, motivations and expectations. Thoroughgoing changes in the structures, content and type of the services provided by higher education will be necessary if they are all to be accommodated.

It is not always easy to identify the characteristics of these new students, particularly the adults, an increase in whose number is forecast for the end of the seventies as a consequence of the stop-outs.(5) New students coming from high schools will be the easiest to identify,(6) if it is assumed that in an egalitarian system 80 per cent of high school graduates from each social group will continue their studies. The new students are to be found among the lower third of passes at high schools, where they often have learning problems. Three-quarters of them come from underprivileged

(1) The Open Door Colleges, op. cit.

(2) Quality and Equality: New Levels of Federal Responsibility for Higher Education, Carnegie Commission on Higher Education, McGraw-Hill, New York, 1968.

(3) Less Time more Options: Education beyond the High School, Carnegie Commission on Higher Education, McGraw-Hill, New York, 1971.

(4) New Students and New Places, op. cit.

(5) New Students and New Places, ibid., p. 57.

(6) P. Cross, Beyond the Open Door, Jossey Bass, San Francisco, 1971.

social groups or ethnic minorities. Their object in taking vocational courses at two-year colleges is to further their career, not because they have a taste for study; lastly, they reject present academic standards and insist on the use of new educational methods.

The definition of these profiles has made it possible to put forward proposals for adapting content and methods to the expectations of these new students, such as the introduction of short comprehensive courses which include career education, further training or retraining, remedial courses, cultural programmes related to the environment, the use of educational technology, the creation of new apprenticeship schemes (mutual tutorialships), self-assessment, etc.

The future outlook for open admission depends on the explicit or implicit adoption of new criteria and principles, among which the most important are that higher education should:

- be accessible to all those capable of benefiting from it whatever their social background, age, the cost of their course, or the qualifications attained at secondary school;

- be centred on the individual. admission criteria should take account of experience and motivations, and serve the student rather than the institution or his future employers.

The prospect is not without its risks,(1) such as:

- that of a pseudo-democratisation and a perpetuation of discrimination within the system, should each type of institution recruit from a particular social category;

- an unfavourable reaction from professional groups or employers who, to offset the abolition of forms of selection during education, may well introduce even more arbitrary selection criteria when it comes to recruiting staff;

- the negative effects of excessive social pressure on students to continue their education, which may lead to a form of 'conscription' serving to conceal under- or unemployment.

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(1) The Learning Society, a Report of the Commission on Post-Secondary Education in the Province of Ontario, Ministry of Government Services, Toronto, 1972.

III

NEW RELATIONS BETWEEN POST-SECONDARY EDUCATION AND EMPLOYMENT

by

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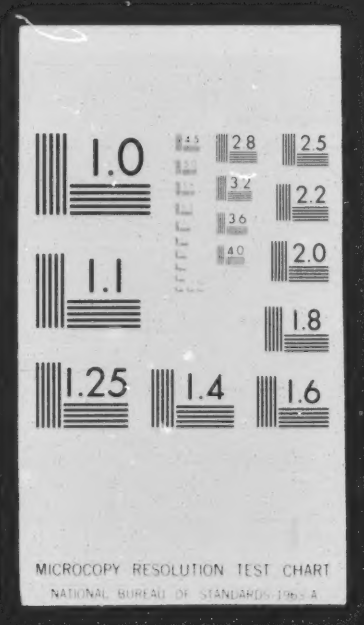
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SUMMARY

Scope of the Report

Massive private demand for education during the last twenty years or so has led to an expansión of post-secondary education in many developed countries, such that policy-makers today must think in terms of a mass higher education system. At the same time, economic development, rapid technological progress and increased competition in international markets have brought major changes in employment structures.

In most OECD countries, these trends have led to a situation where many fear that a gap may develop between education and employment or more precisely between the occupational qualifications and expectations of graduates, and current employment opportunities and career prospects. For the first time, young graduates are having difficulty in finding suitable employment.

The aims of this report are to review the current debate, together with opinions and policies which seem to be prevailing in Member countries, to present evidence of the main trends and to suggest possible ways of looking at the new relationships between education and employment.

The Approach to the Problems

The analysis is based on an examination of trends in the range and nature of occupations for graduates; special attention is given to those sectors of employment which have until now represented the traditional recruiting areas for graduates. The mechanisms of structural change in employment are examined with a view to having a clearer idea of qualification requirements.

The discrepancies between targets set by past educational planning and manpower forecasts on the one hand and actual requirements on the other have led to a certain scepticism about the function and role of the educational system in professional training. Quantitative planning should essentially include functional analysis if the educational system is to fulfill one of its essential objectives, which is to endow individuals with appropriate qualifications for employment.

The numerous aspects of this complex problem cannot be analysed on the basis of a mathematical model. The aim is therefore to focus on the information available about:

- the composition of the flow of young graduates, according to level and type of education, general or vocational, full-time or part-time, etc.;

- the distribution of graduates as among the different sectors of employment, occupations, types of job and the educational origin of those in high-level positions;

- their relative earnings, employment and career opportunities;

- trends in employment structures.

A special effort has been made to bring to light those problems and difficulties which can be related to cyclical conditions, and those which can be linked to structural trends and which therefore call for changes in policy.

Conclusions

This chapter puts forward certain conclusions, which have already been accepted in a number of countries where the educational system is highly developed:

- the future quantitative expansion of higher education must be related to an adaptation of the content, structures and objectives of the system;

- backed by appropriate orientation and information mechanisms and processes which should enable the individual to develop and at the same time meet the needs of society as far as occupational qualifications are concerned;

- the new and diverse student clientele, allied to the increased number of graduates in the labour market, calls for more flexible and diversified structures and new forms of study, in which the professional component is given increased consideration;

- emphasis is put upon the fact that there may be an increasing imbalance between the qualifications made necessary by rapid technological and economic changes and the attitudes expected of graduates, on the one hand, and their actual preparation and orientation in the educational system. This may lead employers to adopt recruitment policies liable to increase employment difficulties for graduates;

- the solution at the level of higher education might well be to discourage the development of a vocational sector, as opposed to the general education sector, and rather to include a professional component in all branches of higher education;

- employment considerations do not seem to indicate that there is an excess supply of graduates, or that there is need to restrict the further growth of higher education. However, an earlier entry into active life may prove to be more profitable in career terms than academic study, if further educational facilities subsequently are made available;

- it is clear that the new employment conditions require an increased effort on the part of employers, through concerted action with their social partners, in terms of job re-structuring, career development policy and

further education and training for their employees. Such restructuring of career and job design should aim at providing a work environment which also offers a satisfying learning experience;

- it should be emphasised that the success of such measures and efforts within employment will depend on the degree to which the educational system fulfills its responsibilities in preparing young people for their first entry into active life and for future professional development.

INTRODUCTION

The current employment difficulties facing young graduates, their disillusionment with the functions they are offered and the careers open to them and the decline in enrolments in higher education which has been recorded in several countries, are evidence of the urgent need for a review of the relationships between education and employment.

The reforms which have been undertaken in most countries and particularly the organisation or development of short-cycle higher education courses, have not brought any general solution to problems such as the objectives of higher education or the extent to which a system designed to meet the social demand for education is compatible with the structure of employment. An examination of the new relationship between education and employment seems necessary in order to enable the structures of higher education and the specific objectives of each of its branches to be more effectively planned.

The first problem to be considered is to what extent should education serve utilitarian purposes. This problem becomes more acute as higher incomes lead government policy to concentrate less on the economic aspects of education and more on social and cultural objectives. Governments seem to be hesitating today among a number of radically conflicting political principles. Some are anxious to open up higher education to all sectors of the population. Others, which have long considered that the universities should be open to all, have decided to reintroduce selection and even numerus clausus. Yet others are endeavouring to reconcile these two attitudes by introducing different admission policies for the different branches of higher education. Certain of them wish to disseminate education and culture as widely as possible. Others feel that it is dangerous to allow young people to pursue courses which may lead to disappointment and frustration.

The second problem is to ascertain whether a mass system of higher education, while fostering personal development, can be an adequate preparation for employment and a career. It is not merely a question of quantitative equilibrium. The point is to decide whether a mass system of higher education can give each student a real training and develop the qualities and attitudes he will need in his subsequent career. Failing this, students may well turn away from the universities and policy planners may wonder whether resources might not be better utilised, for example in improving the quality of secondary education.

The third problem is to decide whether it is possible to forecast changes in employment structure or in the demand for qualifications. It is true that in the last decade efforts have been mainly concentrated on achieving quantitative adjustments and these have revealed wide possibilities of substitution between one category of graduates and another. However, current planning contains very little functional analysis of future economic systems. No government which hopes to shape the future community can afford to neglect the responsibility of giving the rising generation the training and qualifications which will enable it to built this future society.

A survey of current relationships between education and employment, showing the main lines of a policy designed not only to satisfy social demand but to meet the constraints of employment, holds considerable difficulties. The first is the comparability of the employment situation in the various Member countries in the light of their level of development, the previous practices and policies, their individual structures and, of course, short-term economic trends.

A more serious difficulty is the comparability of educational systems whose structure and orientation differ from one country to another. Despite these differences there is one feature common to all: the difficulties of meeting the pressure of demand, of adapting to a new student clientele and of preparing students for potential employment.

This survey is based on a confrontation between the demand for qualifications on the employment market and the characteristics of the product of the educational system, an analysis of the true nature of the social demand for education and the recent experience of Member countries in matters of employment. At the same time an attempt has been made to detect structural changes in production and employment designed to make better use of the influx of abilities resulting from the spread of education. This overall survey should result in a reshaping of policy in order to avoid unduly strict selection, cuts in educational appropriations or a disaffection for education among the rising generation.

I. CHANGES IN THE EMPLOYMENT POSITION

The far-reaching changes which are taking place today in employment are due to the transformation, not only of the machinery of production, but also of social demand and behaviour patterns. What are the nature of these changes and the factors underlying them? Has the development of education helped to bring it into line with employment needs?

A. Employment Structure and Demand for Qualifications

Everybody is familiar with the main factors influencing changes in employment, i.e., the decline in the agricultural population, the expansion of the tertiary sector and the stabilisation of industrial employment. The proportion of white-collar jobs has increased and accounts for close on 50 per cent of the active population in the United States (see Table 1).

It is also true that most functions today call for more and more qualifications. But these facts are not sufficient for a definition of the occupational component of education. A simple quantitative analysis reveals certain imbalances which are clearly caused by more than short-term economic trends, such as lack of qualified personnel, use of immigrant labour, dissatisfaction, frustration, under-employment and unemployment. But when the nature of this maladjustment and the responsibilities of the educational system in vocational training are considered, it is obvious that the link between training and career is by no means as simple as in the past.

Table 1

United States: Employed Persons by Occupation Groups

Occupations	1960	1965	1970
	Percentages		
Professional and technical	11.4	12.5	14.2
Managers, etc.	10.7	10.3	10.5
Clerical workers	14.8	15.7	17.4
Sales workers	6.4	6.3	6.2
Total white-collar workers	43.3	44.8	48.3
Craftsmen and foremen	13.0	13.0	12.9
Operatives	18.2	18.8	17.7
Unskilled labour	5.4	5.1	4.7
Total blue-collar workers	36.6	36.9	35.3
Private household and other service workers	12.2	12.6	12.4
Farmers and farm managers	4.2	3.1	2.2
Farm labourers and foremen	3.7	2.6	1.8
Total	100.0	100.0	100.0

Source: Manpower Report of the President, U.S. Department of Labor, U.S. Government Printing offices, Washington, 1972, Table A-11.

To clarify the objectives of education in the vocational field it is necessary to look beyond the usual statistical picture of employment in order to have a more effective knowledge of functions, qualifications and their mutual relationships. This is a very wide and comparatively new field of research: technical developments and the rate of economic progress have disrupted the traditional mechanisms for channelling new recruits into the trades and professions.(1)

(1) Centre d'études et de recherches sur les qualifications: Possibilités d'emploi selon les qualifications acquises dans les formations initiales, (Possibilities of Employment according to Qualifications acquired in Initial Training), Paris, 1972.

The development of a mass system of higher education raises the problem of finding active employment for young graduates. Up to the present, higher education has generally been linked to well-defined functions and careers carrying a fairly high social status and income. The increase in the number of graduates and the orientation of academic education have now broken this link and students may well be disappointed by the types of employment in fact available.

1. Factors of overall structural change

The trend in the employment structure has primarily been determined up to now by the trend in the industrial sector or more exactly by the field of application of industrial methods. Post-industrial society is one of far-reaching change rather than progressive expansion and the result of this is that job anxiety has never been more intense among parents and planners.(1) The causes of this anxiety are worthy of attention:

(a) The community's new objectives

Once the material needs of equipment or final consumption have been satisfied the rise in living standards creates an increased range of needs, particularly for services, such as health, education, tourism and leisure for example. These however are elementary needs which are satisfied by the traditional ways in which occupations or economic activities are determined. But the change is even more far-reaching: the system itself is being challenged by the search for an improvement in the quality of life.

It is clear that this attempt to improve the quality of life calls for a profile of qualifications which is quite different from that required by industrial development until now. The coming of the new society may well challenge the aims and objectives of education, which will be expected not only to meet the need to produce goods and services but also to satisfy the deeper demands of human beings.

(b) Extensive structural changes

Not only is there a shift in demand but changes are occurring in the ways of satisfying demand. Certain changes are long-term while others occur much more abruptly. These are far-reaching structural changes which demand a rapid adaptation of employment. The spread of competition and the growth of markets have reshaped the international pattern of production in the light of the suitability of individual countries and their respective employment conditions. Industrial mergers and concentrations are also having their effect, particularly on high-level personnel.

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(1) C. Vimont, "La représentation de l'emploi dans la société française de demain", (Employment Concepts in French Society in the Coming Years), Bulletin du Centre d'études de l'emploi, Paris, December 1972.

These far-reaching changes are a source of anxiety in the field of employment. It may be estimated that in about 20 years certain nations will be able to meet their material needs with perhaps 15 to 20 per cent of their present labour force.(1) The problem would then be how to employ the rest of the active population, and particularly the growing number of graduates.

But it may be considered that improvements in the qualities and conditions of living offer practically unlimited possibilities of employment. What kind of qualifications would then be required? It is quite unlikely that they would be of a new type. A new conception of traditional activities is more likely, calling for improved qualifications, particularly at higher levels, in view of new responsibilities.

(c) Supply of graduate personnel

Although the rise in the average level of educational attainment of the population as a whole is not very great, among new recruits to the labour market it is very noticeable (see Table 2).

Table 2

United States: Education of the Active Civil Population by Age Groups

(average number of years of study)

Age Group	1959	1965	1970	1971
65 years and over	8.6	8.9	9.6	9.9
55 to 64 years	8.9	10.3	11.8	12.0
45 to 54 years	10.8	12.0	12.3	12.3
35 to 44 years	12.1	12.3	12.4	12.4
25 to 34 years	12.3	12.5	12.6	12.6
18 to 24 years	12.3	12.4	12.6	12.6
Total	12.0	12.2	12.4	12.4

Source: Manpower Report of the President, op. cit., 1972, Tables B-9 and B-11.

(1) D.S. Davies, "The Short-Term and the Long-Term" in What Kind of Graduates Do We Need?, Oxford University Press, 1972.

It is clear that this trend in the supply of graduates will lead to changes in their use if the functions which they occupy do not multiply at the same rate. For example, whereas the index of people exercising a liberal profession or occupying a higher technological function in the United States stood at 155 in 1971 (1959 = 100) and 125 in the case of managers and senior executives, the index for the number of graduates rose to 183 and 174 according to whether they had done less or more than four years of study.(1) Employers may be expected to recruit graduates for functions which have hardly ever been assigned to them up to now.(2) An under-employment of their capacities or a "downward mobility" may be feared in certain sectors.

One question here is whether this trend is likely to promote greater equality of opportunity in employment or whether the competition for employment will rather favour graduates by strengthening their already dominant position.(3) The way in which employers react will be of decisive importance; whether they short-list candidates with degrees(4) or whether they hesitate to recruit graduates for sectors where they have as yet hardly penetrated.(5)

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(1) Calculated from Manpower Report of the President, op.cit., 1972, Tables A-11 and B-9.

(2) M. Kammerer, B. Lutz and C. Nuber: "Forecasting of Requirements and Employment of Highly Qualified Personnel", OECD document, 1971 (mimeo.).

(3) A survey published in 1971 of posts held by highly qualified personnel in 35 German firms showed:

- 27 per cent of graduates occupied functions which did not require a university education and 14 per cent were in posts which could be held by technicians with secondary school qualifications;
- 6 per cent of technicians of secondary school level held posts which formally required university level education and 9 per cent were in jobs which were also rated as suitable for personnel of university level;
- 6 per cent of the non-certified personnel exercised functions of university level, 26 per cent had technical jobs of secondary school level and 3 per cent held posts accessible to personnel of both levels.

Personnel without university training therefore held 24 per cent of functions formally requiring a university education and 59 per cent of functions considered as accessible to graduates or technicians of secondary school level. See L. Alex and G. Welbers, "Forecasts of Supply and Demand of Highly Qualified Manpower in the Federal Republic of Germany", OECD document, 1971, Table 13 (mimeo.). This should be compared with Morikazu Ushiogi, "A Comparative Study of the Occupational Structure of University Graduates", The Developing Economies. Tokyo, 1971.

(4) L.C. Thurow, "Education and Economic Equality", in The Public Interest, Summer 1972.

(5) Confederation of British Industry, Supply and Demand in Higher Education, January 1972.

It is also possible that graduates will tend to take over the function which they feel to be most related to their own training, thus fostering the trend towards the fragmentation of functions(1) and promoting the employment of immigrants for the less qualified tasks. It has been noted throughout industry that graduates prefer the tertiary activities and that these activities tend to absorb arts graduates which it would be difficult to employ elsewhere.

If graduates turn their backs on certain types of employment and employers in the industrial sector cease to give them any preference, there is a risk that discrimination between categories of workers may increase and a new kind of exploitation will emerge leading to a decline in productivity and a deterioration in economic equilibria.

(d) The development of social policies

Income distribution is no longer completely based on abstract criteria involving marginal productivity or profitability. With equalisation policies covering pensions, sickness leave and unemployment relief and the tendency towards greater flexibility in active life, the relations between function and income are now becoming more blurred: it is characteristic that the United States authorities have introduced a special allowance for personnel whose earnings fall short of unemployment relief rates.

This trend certainly has affects on motivations and attitudes to work. In the new society the privilege enjoyed by graduates might be reinforced and their degrees might replace the concept of profitability as a criterion for fixing incomes.(2) The previous equilibrium between supply of qualifications and demand might be affected thereby.

2. Factors governing the trend in functions

Apart from their general and sectoral aspects, how will functions develop from the micro-economic standpoint? Available statistics by status and socio-professional categories give little information on functions which must be analysed on another and more empirical basis, in other words with reference to qualifications.

(a) Scientific and technological progress

Apart from its well-known effects on productivity, technological progress has upset the balance of employment structures by concentrating planning and methods in one and the same hands and developing a class of semi-skilled workers doing routine jobs. How have the functions of the more qualified personnel been affected? First, it is

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(1) "We urge industry to investigate the organisational changes which are necessary to spread responsibility more widely. We regard this as a major recommendation", Universities and Industry Joint Committee Working Party on "Universities and Industrial Research", in Industry, Science and Universities, London, Confederation of British Industry, 1970.

(2) L.C. Thurow, "Education and Economic Equality", op.cit.

commonplace to emphasize the widespread penetration of technology to which a purely general as opposed to a professional or technical, higher education hardly seems adapted. But although there is an increasing influx of new knowledge, technologies have remained fundamentally unchanged. It is their complexity which has increased, bringing a range of special tasks into play and calling for the development of more suitable materials. Technological progress has increased the need for technological training, has altered the relative significance of individual fields of specialisation and calls for a broader general technological background. Only a few fields, such as electronics and telecommunications for example, appear to be entirely new. But although they have proved attractive sectors to young people, they do not carry a great deal of weight as a proportion of total employment and may well already be close to saturation point as far as employment and recruiting are concerned (see Tables 3 and 4). It may be anticipated that technological progress will not necessarily require the training of a large number of high-level scientific specialists. The demand is more likely to be for reliable practitioners with an extensive, concrete background in traditional fields. This point is important in the planning of a mass system of higher education and particularly of short-cycle courses.

(b) Expansion of markets

Increased communication facilities and the spread of ideas and information call for methods of work in which information, co-ordination and control are just as important as technological competence. The information and relation functions are developing either departmentally or in the form of individual ability profiles. Technicians are being compelled to broaden their background and acquire a sound training in allied disciplines, e.g., a practical introduction to management techniques.

As a result, two qualities are required which do not seem very compatible at first sight; these are specialisation and adaptability. This dilemma may involve reconversions which are particularly difficult when technical(1) or functional(2) specialisation is narrow and professional competence may be wasted or watered down in an unstimulating environment and working conditions. Personnel policies may help workers to keep their capacities up to their limits throughout their career, in the same way as recurrent education.

(c) Methods of organisation and management

These methods have become more rigorous and more scientific, as far as financial management and job co-ordination are concerned. They call for adaptability, intellectual discipline, team spirit, interest in new ideas and ability to meet change.

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(1) For example, scientific personnel in the aerospace sector in the United States who do not adapt easily to current industrial functions.

(2) For example, researchers whose functions often cause them to lose contact with information about other professions and their problems: Group report Carrière des chercheurs et mobilité (Career and Mobility of Research Workers), Délégation générale à la recherche scientifique et technique (DGRST), Paris, 1968.

Table 3

United States: Unemployment Rates of Engineers by Speciality, June-July 1971

(by percentage of speciality)

Field	Unemployment Rates
Aerospace	5.3
Electronics	5.3
Mechanical	2.8
Electrical	2.2
Chemical	1.9
Civil	1.2
Total	3.0

Source: K. Naughton, "Characteristics of Jobless Engineers", in Monthly Labour Review, October 1972, p. 17.

Table 4

United States: Unemployment Rates of Engineers by Age Group, June-July 1971

(by percentage of age group)

Age Group	Unemployment Rate
24 years and under	5.5
25 to 29 years	3.3
30 to 34 years	2.2
35 to 39 years	2.2
40 to 44 years	2.7
45 to 49 years	2.8
50 to 54 years	3.3
55 to 59 years	4.1
60 to 64 years	4.2
65 years and over	3.4
No report	2.4
Total	3.0

Source: K. Naughton, ibid., p. 19.

They are based on a division of responsibilities and jobs. These conditions may cause unrest among personnel with higher qualifications who are unhappy at finding themselves in a subordinate position where job fragmentation is the rule and they are merely cogs in a huge machine. In the case of senior executives and managers(1) the solution might be in career redesign involving a learning component to update their knowledge and rekindle their energies. Although the big firms now plan careers which include job rotation, this solution requires greater flexibility in employment structures.

B. Employment Prospects for Graduates

Graduates have been used to enjoying considerable security of tenure and to obtaining high-level functions. The development of a mass system of higher education and the diversification of economic activity are likely to abolish these privileges and bring the position of graduates more into line with that of other employees. Mergers, concentrations and budget restrictions have already led to unemployment among graduates. Uncertainty as to employment and careers has greatly contributed to unrest in the universities. The employment prospect for graduates is causing disquiet in government and academic circles and also among the parents of students.

Employers do not of course necessarily look for qualifications which are immediately utilisable since they may prefer staff with personality and ability and be prepared to train young recruits in the methods and problems peculiar to their own firms.(2) Their attitude however is conditioned by numerous factors. For example, short-term economic trends are responsible for sudden stoppages in the recruiting process and imbalances in age structures and career development.(3) In such cases employers resort to internal promotion. This practice will increase when graduates become so numerous on the market that they are assigned functions at a relatively lower level.

Holders of high-level posts used, in most cases, to be recruited on the strength of their degrees or qualifications. The abundance of graduates has compelled employers to take more account of ability and competence, except in public administration where regulations are more rigid. In many cases, holders of doctorates or third-cycle diplomas are already losing the advantage they enjoyed over holders of a first degree, particularly in the United States and the United Kingdom.(4)

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(1) "We probably are increasing our management skills relative to the industrial production workers but our skill in managing the knowledge worker lags far behind", H. Matthews, "Career Opportunities for Associate Professional Manpower", OECD document, 1971 (mimeo.).

(2) D.S. Davies, "The Short-and the Long-Term", op.cit.

(3) Economic Development Committee for the Electronics Industry (United Kingdom): "Manpower Utilisation in the United Kingdom Electronics Industry", OECD document, 1971, (mimeo.).

(4) "Employment Prospects in the 70's for Highly Qualified Manpower - United Kingdom, OECD document, 1971 (mimeo.).

1. Current employment difficulties of young graduates

It is not easy to measure these difficulties. Many young unemployed people cannot be registered while they are waiting for their first job. Certain accept a temporary job or one which they consider below their level. Many resume their studies and are classified as students (see Table 5). However, these difficulties are real and have even assumed disquieting proportions. In the United States, unemployment among young people who have completed their secondary schooling was about 18 to 19 per cent in 1971 and 1972 whereas the rate of unemployment in the active population as a whole was below 6 per cent (see Table 6). In 1972 unemployment among young graduates from post-secondary institutions was 8 per cent in the United States. This figure is, admittedly, lower but the situation represents a quite new development.(1) If this figure is compared with the data in Table 7 it reveals the extent to which young workers are affected by employment difficulties. Table 8 shows the scale of unemployment among young graduates in the United Kingdom in the last few years.

Employment difficulties are not only reflected in unemployment, which is an extreme sign of disequilibrium; they are also reflected in disappointment and frustration, one sign of which may be excessive mobility. One may wonder whether these difficulties are due to short-term economic cycles(2) or whether it is the educational system which contributes, particularly at post-secondary level, to the building up of structural imbalances.

(a) Professional expectations and employment structure

The desire for an enhanced social status and a better income which motivate the pursuit of higher education is coupled with the prestige of scientific work and the intellectual satisfactions to be drawn from it. As has already been pointed out, the influx of graduates has brought the functions assigned to them either down to a level formerly reserved for personnel with less training(3) or at least to a level which

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(1) "The Job Gap for College Graduates in the 70's", Special Report, Business Week, 23rd September, 1972.

(2) "There has been some recent concern that the current weakness in the United States job market for college-educated workers, especially for scientific and engineering personnel, is a preview of a darkening outlook over the 1970's for highly skilled workers. It has been said that the present over supply of college-educated workers in many fields would have become fully evident in any event in the mid-1970's; that the current economic slow-down and falling-off in government R & D spending have served to accelerate the inevitable situation; and that in a way we are fortunate that relatively minor imbalances have emerged now so as to give the nations several years' lead in anticipating a more serious disequilibrium that looms in the future": A.M. Cartter, "Scientific Manpower for 1970-1985", Science, 9th April, 1971.

(3) "The 1968 Triennial Manpower Survey shows that 60,000 graduates are employed as technicians or technician engineers out of a total graduate manpower in engineering, technology and the scientific field estimated at 360,000. One science or engineering graduate in six is therefore employed below the technologist level." B.H. Turner, "The Utilisation of Highly Qualified Personnel, United Kingdom", OECD document, 1971, (mimeo.).

Table 5

United Kingdom : Position of University Graduates at 1st December after taking their First Degree (a)

Percentages

Nature of degree	Undertaking further education or training (b)	Already in employment	Gained employment	Seeking permanent employment	Others (c)	Total of (1) to (5)
	(1)	(2)	(3)	(4)	(5)	(6)
Education						
1968-69	59.2	-	31.6	1.3	7.9	100.0
1969-70	42.5	0.9	50.0	0.9	5.7	100.0
1970-71	39.7	-	50.8	2.4	7.5	100.0
Studies allied to medicine and health						
1968-69	25.0	1.7	67.1	1.2	5.0	100.0
1969-70	35.1	0.3	58.5	0.9	5.2	100.0
1970-71	33.9	1.2	56.9	1.3	6.7	100.0
Engineering and technology						
1968-69	16.6	3.6	69.9	2.3	7.6	100.0
1969-70	15.7	3.5	68.8	2.8	9.2	100.0
1970-71	18.5	3.5	62.0	7.1	8.9	100.0
Agriculture and forestry						
1968-69	34.5	1.0	53.5	3.7	7.3	100.0
1969-70	28.3	0.9	55.9	7.4	7.0	100.0
1970-71	27.6	1.1	49.3	10.5	11.4	100.0
Science						
1968-69	46.7	1.2	39.9	4.0	3.2	100.0
1969-70	47.1	1.5	37.4	5.9	8.1	100.0
1970-71	47.8	1.4	32.7	8.5	9.6	100.0
Social, administrative and business studies						
1968-69	38.5	3.1	39.9	5.8	12.7	100.0
1969-70	39.2	3.6	37.4	6.4	13.4	100.0
1970-71	38.7	3.2	34.8	8.8	14.5	100.0
Architecture and town planning						
1968-69	33.3	0.4	54.2	3.3	8.8	100.0
1969-70	20.3	0.3	67.0	1.8	10.6	100.0
1970-71	19.9	0.2	63.5	3.2	13.2	100.0
Literature and Arts						
1968-69	52.2	1.5	29.8	4.3	12.2	100.0
1969-70	50.3	1.7	28.5	6.1	13.4	100.0
1970-71	49.5	1.6	26.8	7.4	14.7	100.0
TOTAL						
1968-69	40.4	2.2	42.9	4.2	10.3	100.0
1969-70	39.8	2.4	41.3	5.5	11.0	100.0
1970-71	40.1	2.3	37.6	7.9(d)	12.1	100.0

(a) Degree awarded between 1st October and 30th September of the following year.

(b) Including research workers.

(c) Not available for the labour market and not specified.

(d) Of whom about two fifths were in temporary or occasional employment during 1971.

Source: Calculated from the University Grants Committee, First Employment of University Graduates, HMSO, London.

Table 6

United States: Unemployment Rate of Civil Labour Force by Age Groups between 1967 and 1971

(percentage of active workers in the relevant age group)

Age Group	1967	1968	1969	1970	1971
16 - 17 years	14.7	14.7	14.5	17.1	18.7
18 - 19 years	11.6	11.2	10.5	13.8	15.5
20 - 24 years	5.7	5.8	5.7	8.2	9.9
25 years and over	2.7	2.3	2.2	3.3	4.0
Total	3.8	3.6	3.5	4.9	5.9

Source: Calculated from Manpower Report of the President, op.cit., 1972. Tables A-6, A-14, A-15.

Table 7

United States: Unemployment by Educational Level in March 1972(1)

Percentages

Level of education (number of years of study)	Breakdown of unemployment by level	Proportion of unemployed at each level
Elementary		
- less than 5 years	2.3	6.1
- 5 to 7 years	6.3	6.8
- 8 years	8.8	6.2
High School		
- 1 to 3 years	34.4	8.2
- 4 years	39.6	5.5
College		
- 1 to 3 years	12.3	4.9
- 4 years	4.7	3.1
- 5 years and more	1.6	1.6
Total	100.0	5.6

(1) Active civil population aged 18 and over.

Source: Calculated from W.D. Deutermann, "Educational Attainment of Workers", March 1972, in Monthly Labour Review, November 1972, p. 39.

Table 8

United Kingdom: Proportion of Unemployed Graduates on the Labour Market at 1st December after Graduation

Percentages

Nature of Degree	Degrees obtained between 1.10.69 and 30.9.70	Degrees obtained between 1.10.70 and 30.9.71
FIRST DEGREE		
Education	1.9	4.5
Studies allied to medicine and health	1.5	2.2
Engineering and technology	3.9	10.3
Agriculture and forestry	12.4	17.6
Science	13.7	20.5
Social, administrative and business studies	14.6	20.1
Architecture and town planning	2.6	4.8
Languages, literature, area studies, arts	17.7	21.6
Total	11.7	17.3(1)
HIGHER DEGREE		
Education	0.9	3.4
Studies allied to medicine and health	4.3	3.7
Engineering and technology	1.8	2.6
Agriculture and forestry	5.6	5.9
Science	2.8	4.6
Social, administrative and business studies	5.2	3.2
Architecture and town planning	1.2	1.4
Languages, literature, area studies, arts	5.5	6.6
Total	3.3	4.0

(1) Of whom about two fifths held a temporary or occasional job in 1971.

Source: Calculated from University Grants Committee, First Employment of University Graduates, HMSO, London.

graduates consider to be unrelated to their studies. Tables 9 and 10, which refer to Japan, reflect a comparative decline in the number of graduates in high-level industrial functions. Table 11, relating to France, shows that in industrial functions as a whole and in most of the high-level functions, graduates are in the minority.

Table 9

Japan: Utilisation of Young Graduates by Professional Categories

Percentages

Professional Categories	Graduates of junior colleges		Graduates of universities	
	1955	1967	1955	1967
Professional and technical	43.2	39.4	49.6	41.3
Clerical workers	37.3	42.7	37.5	32.2
Sales	4.0	7.6	4.2	19.3
Agriculture, forestry, fisheries	1.2	0.7	0.6	0.3
Transport and communications	0.9	0.9	0.3	0.7
Skilled work and production processes	4.4	1.4	2.3	0.2
Simple labour	1.0	0.2	0.3	0.1
Service	3.8	3.3	2.0	2.4
Other	4.2	3.8	3.2	3.5
All employees	100.0	100.0	100.0	100.0

Source: Teruhiko Wakana, "Evolution of the Structure of the Labour Force in Japan", OECD document, 1971 (mimeo.).

Public opinion has been perturbed by the employment difficulties of young graduates and there may well be a decline in enrolments in higher education. In Sweden, the number of students in non-professional university courses has been falling since 1968. In France, there has been more recently an influx into long professional training courses, particularly medicine. In the United States, budget restrictions and the abandonment of large-scale projects based on advanced technology have led to a fall in the number of students in engineering schools and science faculties.(1)

(1) "The Job Gap for College Graduates in the 70's", op.cit.

Table 10

Japan: Level of Education of the Active Population by Professional Categories

Percentages

Professional Categories	Year	Educational Level Compulsory	Secondary	Higher	Total
Managers	1959	32.2	31.6	36.2	100.0
	1968	15.5	45.9	33.6	100.0
Technicians	1959	10.0	54.5	35.5	100.0
	1968	8.8	59.0	32.2	100.0
Researchers	1959	-	43.8	52.6	100.0
	1968	10.2	28.6	61.2	100.0
Other professional and technical work	1959	6.2	17.1	76.7	100.0
	1968	7.9	25.7	66.4	100.0
Clerical work	1959	28.8	55.8	15.4	100.0
	1968	19.1	67.0	13.9	100.0
Skilled work	1959	64.7	32.7	2.6	100.0
	1968	84.8	14.8	0.4	100.0
Experienced labour	1959	90.9	8.8	0.3	100.0
	1968	63.0	34.8	2.2	100.0
Simple labour	1959	91.7	8.0	0.3	100.0
	1968	86.1	13.6	0.3	100.0
Sales	1959	67.9	29.0	3.1	100.0
	1968	40.4	53.1	6.5	100.0
Other	1959	80.7	18.0	1.3	100.0
	1968	68.6	29.1	2.3	100.0
Total	1959	76.2	18.1	5.7	100.0
	1968	58.2	32.6	9.2	100.0

Source: Calculated from Teruhiko Wakana, op.cit.

Table 11

France: Breakdown by Functions of Highly Qualified Personnel with University Degrees in 1968*

Percentages

Function	Graduates (1)	Non-graduates (2)	Total (3)
Management	55.4	44.6	100.0
Planning	62.9	37.1	100.0
Production	39.3	60.7	100.0
Marketing	18.7	81.3	100.0
Administration	25.0	75.0	100.0
Total	39.1	60.9	100.0

* These figures are taken from a survey covering five regions in the west and south-west of France. The survey was repeated in 1970 for the country as a whole and a consolidated result was published in Note d'information No. 6, issued by the Centre d'études et de recherches sur les qualifications, 15th January, 1972.

Source: "Les besoins de formation en cours de carrière des ingénieurs et des cadres" (Demand for In-career Training from Engineers and Responsible Staff), Hexagone initiatives, No. 58, June 1969, p. 14.

Discrepancies can be observed not only in the level but also in the nature of the functions available to graduates. Although supply can adapt to demand in terms of level, there is little adaptation as regards the nature of functions which is bound up with the pattern of the final demand for goods and services. In the last 20 years demand in Member countries has enabled many graduates to find employment consistent with their training in education, research and development and the most advanced industries. But, as has been shown, the mass system of higher education has upset this pattern of employment.

The decline in the level of their functions is likely to make graduates apprehensive about the possibility of a corresponding decline in their salary level. Trends in this field are difficult to foresee. Surveys carried out to date show that graduates have retained their advantage(1) but there is no very recent information

(1) H. Goldstein, "Adaptation of Supply and Demand for Highly Qualified Workers in the United States", OECD document, 1972 (mimeo.).

reflecting the situation in countries other than the United States, now that the products of the mass system of higher education have arrived on the labour market. Nor is anything known about the future breakdown of graduates in the pyramid of functions(1), i.e., whether they will be concentrated at the highest levels according to Thurow's theory (2) or much more scattered. It is probable that both trends will be observed according to the way training is adapted to employment requirements. Relying on an increase in living standards, governments are fairly optimistic.(3) It may, however, be anticipated that graduates will lose much of their relative advantage.

(b) Qualification and short-term economic factors

The concept of qualification is related to the concept of specific functions to be performed. A degree does not constitute a qualification, particularly if it is awarded after a general course of study. And qualifications may be completely worthless if they cease to be in demand, more particularly if they are highly specialised.

Certain graduates are very vulnerable to employment trends, e.g. those with degrees in the humanities and the social sciences, who are becoming more and more numerous on the labour market where few jobs are open to them(4) now that there has been a decline in recruitment in the educational sector.(5) The situation is much the same for science students. In many countries science has more attraction for students than technology(6) and employers are being compelled to assign to science graduates technological functions, for which they are not specifically trained.(7) The United Kingdom

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(1) Morikazu Ushiogi, "A Comparative Study of the Occupational Structure of University Graduates", in The Developing Economies, 1971, Tokyo.

(2) L.C. Thurow, "Education and Economic Equality", op.cit.

(3) "Employment Prospects in the 70's - United Kingdom", op.cit.

(4) See B. Girod de l'Ain, "Les étudiants en lettres trouvent de moins en moins de débouchés" (The Market for Arts Students is shrinking), Le Monde, 26th February, 1967; J. Vincens, "Que faire des 'littéraires'?" (What shall we do with the Arts Students?), Le Monde, Educational Supplement, 13th June, 1972; "Pour une rénovation des formations supérieures" (A Plea for Reform in University-type Training), Rapport d'orientation No. 14 du ministère français de l'Education nationale: Culture, Information, loisirs, (Policy Report No.14 by the French Ministry of National Education: Culture, Information, Leisure), La Documentation française, Paris, 1972.

(5) See "Teacher Shortage turns into Surplus", in Business Week, 22nd August, 1970, p.18; "Les Licences d'enseignement n'ont plus de débouchés" (The Bottom has fallen out of the Market for Teaching Degrees). Statement by Recteur G. Antoine of The Académie d'Orléans-Tours, Le Figaro, 19th September, 1972.

(6) Development of Higher Education 1950-1967 - Analytical Report, OECD, Paris, 1971.

(7) The Flow into Employment of Scientists, Engineers and Technologists (The Swann Report), HMSO, London, 1968.

has introduced adaptation courses known as "matching sections" in order to enable graduates trained for research to take up functions in industrial production.(1) Similarly, holders of doctorates who are more suited for university life than for industrial production are now being passed over in favour of graduates with lower degrees. In the United States there have been proposals to create a non-research Ph.D. and many universities have chosen to drop their training programmes at this level.

On the other hand, those who have received a professional training, particularly engineers and technologists, are the last to be affected by short-term economic trends. In the United Kingdom, despite an unfavourable situation, graduates in applied science are finding employment. In the United States, which is faced with a quite exceptional situation, the authorities emphasize that difficulties are only temporary.(2) It will also be seen that these difficulties are concentrated in certain special and rather theoretical branches, such as electronics, which are somewhat different from the other industrial disciplines. Employment difficulties, therefore, appear to be due to the absence or inadequacy of professional preparation or to the fact that advanced training is over-specialised and too theoretical.

2. Supply and demand imbalances

There is a certain unrest in all countries which not only affects people's attitudes to their work but also extends to the definition of the aims and objectives of education.

(a) Are there too many graduates?

A general survey of supply and demand imbalances at various levels and in the various sectors of employment throws light on the difficulties of graduates and explains why it may now be felt that too many graduates are being produced.

Nevertheless, shortages have been noted at all levels. Employers complain that available personnel do not possess adequate qualifications. In certain countries the unqualified workers are immigrants. There is a shortage of skilled workers, technicians and middle management personnel. At the same time, employers hesitate to recruit certain categories of graduates, such as over-specialised doctors, research scientists, graduates with arts degrees, students from recently-created short post-secondary courses whose abilities are as yet unknown, and young people with a general

(1) "The Experiment of the Matching Sections for Young Graduates" in "Aspects of the Utilisation of Highly Qualified Personnel in the United Kingdom", op.cit.

(2) The United States Commissioner of Labor Statistics recently spoke of this danger when he cautioned that "... young people should not shy away from engineering and scientific careers because of the current drop in opportunities. Engineering and science have been among the fastest growing occupational fields in recent years and our projections are that requirements for engineers and scientists will continue to increase rapidly during the 1970's". U.S. Department of Labor, News Release, 14th February, 1971 (USDL-71-082).

secondary education and no qualification.(1) It may be concluded that if the sole object of the mass system of higher education is not that of preparing young people for a professional career it is, nevertheless, dangerous to allow it to develop towards the other extreme.(2) Despite the efforts governments are making to give technical and professional education(3) a better standing - efforts which incidentally tend rather to develop the technical branches of education than to ensure that the professional component is integrated into general education - it has been noted that young people now prefer the theoretical types of training which are not career-oriented. Certain observers have therefore concluded that the spread of education has not greatly fostered the acquisition of qualifications or promoted industrial progress.(4)

Attempts are being made to find a more effective way of utilising resources, so as to offer a better quality of education at secondary level, as in the United States or new prospects for training of adults as in Sweden. But in reality "the problem is not so much the number of graduates as the content of studies".(5) The problem also concerns the structures and objectives of post-secondary education.

(b) An exceptional period of recruitment?

Explanations based on short-term economic trends tend to reject the assumption that there are too many graduates. The development of higher education has been very rapid and employment structures have not managed to adapt to a new supply situation, nor have graduates succeeded in adapting psychologically to the nature of their functions because of the elitist character of higher education. In support of this explanation, it may be noted(6) that the United States economy has absorbed a considerable number of graduates. But other considerations point to a less optimistic conclusion and it may be asked whether the steady expansion of the last twenty years was not favoured by exceptional recruiting and career conditions. It was a period of expansion in the tertiary sector where the proportion of graduates is highest (see Table 12). At the same time, education,

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(1) "Over 80 per cent of our 14 million high school students never enter a vocational or technical skill programme": H.A. Matthews, "Career Opportunities for Associate Professional Manpower", OECD document, 1971 (mimeo.).

(2) M.R. Lovell, Jr., "Employment Prospects for College-Educated Workers in the United States", OECD document, 1971 (mimeo.); A.M. Cartter, "Scientific Manpower for 1970-85", Science, 1971.

(3) In 1972 the United States Commissioner of Education, S.P. Marland, proposed an increase of 30 per cent in federal expenditure on professional education. See "The Job Gap for College Graduates in the 70's", op.cit.

(4) La formation professionnelle pendant le VIe plan, (Occupational Training under the VIth Plan), General Report, Paris, 1971.

(5) J. Fontanet, "Y a-t-il trop d'étudiants?", (Are there too many Students?), L'Express, 13th November, 1972.

(6) A. Crampin and G. Williams, "Education and Manpower: Some Lessons from British Experience", OECD document, 1972 (mimeo.).

Table 12

Japan: Trend in the Educational Level of the Active Population by Sectors between 1959 and 1968

Percentages

SECTORS	Year	Compulsory Education	Upper Secondary Education	Higher Education	Total
Primary sectors	1959	90.6	8.8	0.6	100.0
	1963	88.3	11.1	0.6	100.0
	1968	87.3	11.9	0.8	100.0
Mining and construction	1959	82.5	13.3	4.2	100.0
	1963	70.2	23.6	6.2	100.0
	1968	67.2	25.6	7.2	100.0
Manufacturing	1959	77.4	17.2	5.4	100.0
	1963	68.4	25.2	6.4	100.0
	1968	64.2	28.6	7.2	100.0
Secondary sectors (Total)	1959	78.6	16.3	5.1	100.0
	1963	68.8	24.9	6.3	100.0
	1968	64.9	27.9	7.2	100.0
Tertiary sectors	1959	58.8	29.7	11.5	100.0
	1963	44.6	41.2	14.2	100.0
	1968	41.0	44.8	14.2	100.0
TOTAL	1959	76.2	18.1	5.7	100.0
	1963	66.0	26.6	7.4	100.0
	1968	58.2	32.6	9.2	100.0

Source: Teruhiko Wakana, op. cit., p. 10.

particularly in the universities, recruited the best elements of its own product(1) and its recru demands expanded more rapidly than its development(2). Subsequently, the prestige of degrees inherited from an elitist university system was reinforced by the emergence of the sophisticated sectors and carried over into the other sectors where graduates were recruited at salaries which bore little relation with their real qualifications.(5)

It may also be thought that it is simply a strange coincidence that the requirements of the economic system particularly in education, research and development have tallied with the profile of graduates as trained in higher education and this would seem

(1) "The high proportion of those who seem, on the evidence of their academic achievements, to be intellectually the most able, for whom the University has proved a closed circuit": R. Rudd and S. Hatch, Graduate Study and After, London, 1968.

(2) In the last twenty years at least there has been a steady decline in the student-teacher ratio. See in particular Teaching Resources and Structural Change, Volume V of the Conference on Policies for Educational Growth, OECD, Paris, 1971.

(3) "The Job Gap for College Graduates in the 70's", op.cit.

to be particularly true in the case of scientists and engineers. In the sixties education absorbed between one-quarter and one-half of all graduates, according to their level. Large numbers of the others flowed into the technologically advanced sectors (electronics, aerospace) and were employed in big firms on research and development rather than in production or marketing (see Tables 13 to 18).

Table 13

United Kingdom: Employment of Graduates by Level of Studies in 1966

Percentages

Employer	Level of Studies			
	Graduates	Masters	Doctorates	No qualification achieved
	SCIENCE FACULTIES			
Government	30	7	11	8
Schools	11	17	1	16
Further Education	4	17	7	10
Universities	4	12	46	15
Industries	37	33	26	33
Others	11	7	6	9
Not in employment, unknown	4	6	3	8
TOTAL	100	100	100	100
	TECHNOLOGY FACULTIES			
Government	15	5	5	15
Schools	2	3	1	4
Further Education	5	17	5	12
Universities	10	17	31	14
Industries	63	54	52	45
Others	4	3	9	7
Not in employment, unknown	1	2	2	2
TOTAL	100	100	100	100
	OTHER FACULTIES			
Government	19	8	10	10
Schools	8	19	4	23
Further Education	7	19	5	9
Universities	9	33	60	26
Industries	9	6	8	8
Others	26	9	10	16
Not in employment, unknown	21	6	2	7
TOTAL	100	100	100	100
	ALL FACULTIES			
Government	19	7	10	10
Schools	7	16	2	18
Further Education	6	18	5	10
Universities	9	26	46	21
Industries	25	20	26	22
Others	19	8	7	13
Not in employment, unknown	15	5	2	7
TOTAL	100	100	100	100

Source: E. Rudd and S. Hatch, Graduate Study and After, op.cit., p. 58.

Table 14

United Kingdom: Functions of Graduates by Level of studies in 1966

Percentages

Type of work	Level of Studies			
	Bachelors	Masters	Doctorates	No qualification achieved
	SCIENCE FACULTIES			
Scientific research	22	7	34	14
Development, etc.	48	27	13	27
Administration	0	5	2	6
Teaching	22	46	47	40
Others	4	7	1	5
Not in employment, unknown	4	6	3	8
TOTAL	100	100	100	100
	TECHNOLOGY FACULTIES			
Scientific research	5	8	23	13
Development, etc.	50	38	28	33
Administration	26	14	10	16
Teaching	18	37	36	31
Others	0	2	1	5
Not in employment, unknown	1	2	1	2
TOTAL	100	100	100	100
	OTHER FACULTIES			
Scientific research	2	4	13	2
Development, etc.	7	8	9	7
Administration	4	3	3	7
Teaching	21	66	61	56
Others	46	14	11	20
Not in employment, unknown	22	6	2	9
TOTAL	100	100	100	100
	ALL FACULTIES			
Scientific research	4	5	28	7
Development, etc.	21	17	15	17
Administration	9	5	3	8
Teaching	20	57	49	47
Others	30	10	3	13
Not in employment, unknown	14	5	3	8
TOTAL	100	100	100	100

Source: E. Rudd and S. Hatch, Graduate Study and After, op.cit., p. 60.

Table 15 shows the employment of doctors of science in the United States while Table 16 concerns doctors of science and doctors of engineering.(1) Table 17 gives information by sectors on the United Kingdom and Table 18 offers a more detailed breakdown which includes data on technology degrees.

Table 15

United States: Employment of Doctors of Science, 1964-1968

Percentages

		1964	1966	1968
EMPLOYER:	Education	53	55	58
	Government	11	11	11
	Industry and business	25	23	22
	Other	8	8	7
		100	100	100
ACTIVITY:	Research and development	40	39	38
	Management and administration	19	19	19
	Teaching	29	28	31
	Other	10	9	12
		100	100	100

Source: R. McGinnis and L. Moffat Leathers, "A Review of Deployment and Mobility of Highly Qualified Manpower: United States", OECD document, 1971 (mimeo.).

Table 16

United States: Proportion of Graduates Employed in Research and in the Private Sector in 1968

Type of degree	Total employment	of which R & D	
		Number	%
Engineers	12,800	9,600	75.0
Mathematicians	800	600	75.0
Physical scientists	19,500	15,900	81.5
Life scientists	2,800	2,200	78.6
TOTAL	35,900	28,300	78.8

Source: S.L. Wolfbein, "National Policies and Institutional Arrangements (United States)", OECD document, 1971 (mimeo.).

(1) See Ph.D. Scientists and Engineers in Private Industry, 1960-1980, United States Department of Labor, Bureau of Labor Statistics, Bulletin 1648, Washington D.C., Government Printing Office, 1970.

Table 17

United Kingdom: Proportion of Graduate Engineers and Science Personnel employed in R & D in the Manufacturing Industries(1)

Percentages

	1962	1965	1968
Food, drink and tobacco	39.1	28.6	26.8
Chemicals and allied industries	39.9	41.3	43.6
Mineral oil refining	39.9	44.3	34.4
Metal manufacture	26.6	30.1	23.3
Mechanical engineering	25.3	24.3	21.7
Electrical engineering and electronics	47.7	50.5	42.3
Aircraft	56.8	60.9	60.2
Motor vehicles	28.2	25.3	28.6
Other vehicles	16.1	17.6	29.0
Textiles, clothing, etc.	28.3	29.1	28.9
Other manufacturing	36.5	36.4	32.6
TOTAL	47.7	50.5	42.3

(1) According to a survey covering 92 per cent of employment.

Source: "Manpower Utilization in the United Kingdom Electronics Industry", op.cit., Table 22.

Table 18

United Kingdom: Proportion of Science Personnel, Engineers and Technology Graduates employed on R & D in Industry in 1968

Percentages

Industry	Qualified scientists	Qualified engineers & technologists	Total
Food, drink and tobacco	65	16	38
Chemicals	49	17	38
Pharmaceuticals	51	36	49
Petroleum	61	30	49
Metals and metal manufacture	61	39	43
Mechanical engineering	68	35	39
Machine tools	18	11	12
Scientific instruments	61	69	66
Electrical investment goods and consumer durables	44	24	27
Electronics	50	51	51
Motor vehicles	55	35	40
Other vehicles including aircraft	62	60	60
Textiles and man-made fibres	50	22	35
Building materials, etc.	52	29	38
Paper and printing	58	22	41
Other industries	61	20	35
Sponsored research and management consultants	43	10	16
All industry groups	53	42	47
TOTAL	52	26	36

Source: Confederation of British Industry, Industry, Science and Universities, London, 1970, p. 21.

At least 80 per cent of graduates were absorbed in sectors in which they were required to show a high level of immediately applicable and therefore very specialised theoretical knowledge but were not asked for any management, administrative or commercial responsibility. Table 19 is fairly typical in this connection. It shows the extent to which graduates are turning towards scientific rather than technical functions.

Table 19

Great Britain: New Supply of Qualified Scientists and Engineers from Educational Establishments and from Professional Institutions

Year	Engineering & Technology			Science			Grand Total
	Graduates	Non-graduates	Total	Graduates	Non-graduates	Total	
1959	3,040	4,995	8,035	6,040	435	6,475	14,520
1960	3,600	5,310	8,910	7,005	475	7,480	16,390
1961	4,050	5,020	9,070	7,200	495	7,695	16,765
1962	4,190	4,630	8,820	7,395	820	8,215	17,035
1963	4,290	5,345	9,635	7,830	890	8,720	18,355
1964	4,590	5,820	10,410	8,925	985	9,910	20,320
1965	5,515	5,960	11,475	9,885	925	10,810	22,285
1966	6,350	5,475	11,825	10,405	1,200	11,605	23,430
1967	6,975	5,315	12,290	11,410	1,090	12,500	24,790
1968	7,990	5,025	13,015	13,280	1,160	14,440	27,455

Source: Department of Trade and Industry, Persons with Qualifications in Engineering, Technology and Science, 1959-68, HMSO, London, 1971, Table 17.

It may be wondered whether this type of output really fits the needs of modern society as a whole(1) and whether recruiting in the last few decades has not served to satisfy marginal needs. Certain scientists and engineers (electronic specialists, chemists) are already finding it difficult to make use of their specialised knowledge or to obtain promotion in accordance with the age structure in their sectors(2). Other disciplines may well become saturated in the near future.

3. Career trends

The difficulty young people are finding in obtaining employment must not be allowed to conceal other difficulties which are likely to arise in the development of their careers. Their careers have hitherto depended upon:

- internal promotion in the chain of command;
- the development of industries which have made it necessary for individual firms to create qualifications not to be found on the market;
- efforts to improve social status by acquiring qualifications
- the principle of age and seniority in determining salaires.

(1) "The total number of scientists and engineers has been increasing markedly at a time when the proportion engaged has fallen": "The Employment of Highly Specialised Graduates: A Comparative Study in the U.K. and USA", Science Policy Studies, No. 3, HMSO, London, 1968.

(2) P.E. Starr, "Utilisation of Highly Qualified Personnel in a Multinational Firm", OECD document, 1971 (mimeo.).

It is not certain that these factors will remain dominant since others may come into play:

- economic trends may lead to change rather than to expansion, e.g. there may be a concentration of management functions and increased specialisation in the technical and administrative branches;
- conflicts may arise between the mass intake of graduates and already established personnel, tending to slow down career development(1);
- uncertainty may arise as to the future of the young specialists who were recruited in large numbers in the last few years but who have no great prospect of promotion.

II. NEW OBJECTIVES FOR HIGHER EDUCATION

Higher education is in the midst of a serious crisis, which is caracterised by unemployment among graduates, unrest in the universities, misgivings among young people and their parents, reticence on the part of employers. Governments are becoming less ambitious in their planning and even over-prudent. They are apprehensive because they cannot control the development of higher education and cannot always guarantee its quality. They are introducing important reforms in which the social aims are not always consistent with the economic objectives. Limits are being placed on access to some of the short cycles of training recently created to meet social demand (the IUTs in France) so that young people are turning to the traditional university courses to which access is not restricted.

A. Current development problems

1. Traditional university education

Can this become a mass system of education? Is it compatible with the exigencies - or constraints - of employment?

(a) Character of its development

The increase in the number of students in higher education is due to a combination of causes i.e. intellectual prestige, social status, prospect of higher earnings and the expansion in general secondary education which provides a stepping stone to the university. Furthermore, the policy of promoting technical and professional training by giving these graduates access to higher education has channelled large numbers of young technicians away from industrial employment and the prospects of a career in industry. Technical secondary education which was originally self-contained now tends to become a stepping stone to higher education(2). Lastly, there are few alternatives to the long courses

(1) "One of the effects of these policies ... is that college graduates are hired for low-level supervisory jobs, effectively blocking the skilled worker from promotion above the foreman level": H. Goldstein, "Adaptation of Supply and Demand for Highly Qualified Workers in the United States," op.cit.; "Those without a degree may find it more difficult to advance to full professional status ... or to achieve high-level management position": Bureau of Labor Statistics, USA, College Education Workers, 1968-1980: A Study of Supply and Demand, March 1970.

(2) See Reviews of National Policies for Education: Italy, OECD, Paris, 1969.

in higher education. Where short courses existed they were designed for specialisation and the further training of technicians(1), or were merely a preliminary stage in a long course(2). Moreover, restrictions on access to higher professional education, in the form of competitive entry examination or selection, channelled young people towards more accessible courses (see Table 20) and this trend was also encouraged by a policy of making education more democratic and offering equal chances to all so as to ensure that higher education should not continue to be a privilege for the few. Whatever the value of these objectives may be it has become clear that this trend has encouraged the development of courses in fields where there is the least chance of subsequent employment (see Table 21).

Table 20

Sweden: New Entrants in University-type Higher Education

Admission	60/61	65/66	68/69	69/70	70/71	71/72	72/73
Restricted	1,963	3,724	4,238	4,564	4,987	5,500	6,200
Unrestricted	5,840	13,497	25,233	22,532	21,378	17,300	17,450
Total	7,803	17,221	29,581	27,096	26,365	22,800	23,650

Source: L. Kim, "Admission policies in Swedish post-secondary education," OECD document, 1973 (mimeo.).

Table 21

France: University Graduates by Employment Sectors

Percentages

Discipline	59/60	61/62	63/64	65/66	67/68	69/70	71/72
Sciences	34.8	33.4	33.2	32.2	27.4	19.9	17.9
Medicine, Pharmacy	19.9	19.4	16.3	15.1	16.5	21.6	21.9
Law, Economic Sc.	16.2	16.3	17.5	20.4	21.6	21.8	23.1
Humanities, human sciences	29.1	30.9	33.0	32.3	34.5	36.7	37.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Calculated from National Education Tables.

This applies particularly to the countries of continental Europe but has been less true up to now of the English-speaking countries. In the United States the various levels of higher education seem to be more consistent with the current hierarchy of

(1) Towards New Structures of Post-Secondary Education, OECD, Paris, 1971.

(2) See Policies for Science and Education Country Reviews: Yugoslavia, OECD, 1962; "Development of Two-Year Post-Secondary Schools in Yugoslavia in Short-Cycle Higher Education. A Search for Identity, OECD, Paris, 1973; "Short-Cycle Higher Education in Japan, OECD document, 1971 (mimeo.). Also see the case of the National Institute of Applied Science in France.

functions in industry (see Tables 22 and 23) but this consistency appears to be threatened by qualitative considerations and American employers now seem to prefer graduates with a first degree to holders of doctorates and are encouraging in-service promotion for staff without degrees.

Table 22

United States: Ratios of Mean Incomes for Males by Schooling Categories 1939-1966

Selected Year	High School Graduates to Elementary School Graduates	College Graduates to High School Graduates
1939	1.40	1.57
1949	1.41	1.63
1958	1.48	1.65
1959	1.30	1.51
1963	1.49	1.45
1966	1.56	1.52

Source: Z. Grilliches, "Notes on the role of education in production function and growth accounting," unpublished paper, University of Chicago, 1969.

Table 23

United States: Mean Income of Men with College Education compared with that of Men with only Four Years of High School (Index 100)

Year	Number of years of study			
	4 years or more		from 1 to 3 years	
	25 years old and over	25 to 34 years old	25 years old and over	25 to 34 years old
1939	157	147	116	117
1949	163	127	124	106
1956	152	123	116	112
1958	164	141	119	113
1961	165	140	124	108
1963	150	127	116	112
1964	155	131	117	110
1966	157	132	117	110
1967	159	133	117	109
1968	153	129	115	108
1970	157	136	119	111

Source: H. Goldstein, "Adaptation of Supply and Demand for Highly Qualified Workers in the United States", op. cit.

(b) Orientation and objectives of higher education

Initially university expansion had a professional justification:(1) the training of staff for education and the professions. The mass system of higher education upsets this balance and its product no longer tallies with the demand for qualifications.

With regard to medical training, there has been a change in the profession itself. It is now tending to be exercised by groups of doctors each with his speciality. Furthermore, doctors are entering industry, particularly the pharmaceutical branch, as employees and are exercising a wide range of functions necessitating an effort towards interdisciplinarity.(2) Table 24 gives an idea of the anticipated trend.

Table 24

France: Manpower in the Medical and Para-medical Professions in 1970 and Estimates up to 1980 (in thousands)

Qualification	1970	1970-1975	1975-1980
Medical practitioners	67.9	+11.7	+15.0
Independent unspecialised doctors	23.7	+ 2.2	+ 1.0
Salaried specialised doctors	16.0	+ 2.5	+ 5.0
Independent medical specialists	23.8	+ 4.0	+ 6.0
Salaried medical specialists	4.3	+ 3.0	+ 3.0
Dental surgeons	21.5	+ 3.5	+ 4.0
Midwives	8.5	+ 1.5	+ 1.5
Nurses	140.0	+30.0	+50.0
Nurses in Psychiatric hospitals	30.0	+10.0	+20.0
Medical assistants (minor staff)	140.0	+35.0	+30.0
Nursery nurses	2.0	+ 3.0	+ 2.0
Assistant anaesthetists	1.2	+ 0.4	+ 0.4
Masseurs and physical therapists	20.0	+ 6.0	+ 9.0
Pedicure	5.1	+ 2.0	+ 3.0
Speech therapists	2.0	+ 5.0	+ 6.0
Psychologists	2.0	+ 2.0	+ 2.0
Hearing aid specialists	0.8	+ 0.1	+ 0.2
Opticians	5.0	+ 1.0	+ 1.0
Dieticians	0.8	+ 0.5	+ 1.0
Laboratory workers	6.0	+ 3.0	+ 4.0

Source: General Report, Commissariat général au Plan, Commission de la santé, Paris, 1971.

Although the law faculties continue to prepare their students for the legal profession their courses often open the way to administrative functions in both the public sector (public administration, diplomacy, politics) and the private sector (business management, legal expertise, personnel management). Emphasis is consequently put on the need for a fuller training (economics, technology) in order to provide a wider background for young people with a legal training who seek employment in industry as well as those who exercise purely legal functions in an increasingly complex world.

(1) H. Goldstein, "Adaptation of Supply and Demand..." op. cit.

(2) E.H. Schein, Professional Education, Some New Directions, report by the Carnegie Commission on Higher Education, McGraw-Hill Co., New York, 1972.

In many cases, courses in economics have recently been grafted on to existing legal or commercial curricula. Although part of a mass system of higher education they often continue to have a macro-economic bias rather than offering business economics and management techniques.

Training in science and applied science is organised very differently from one country to another; it may be outside the university, as in France, or within university faculties as in Italy, Belgium and the English speaking countries. In general the professional orientation of these disciplines is much more pronounced. However, the intellectual prestige of pure science has upset the balance on the labour market and employers have had to recruit young scientists, give them technical functions for which they were ill-prepared(1) and organise adaptation courses for them. The preference generally shown for pure science by young students results partly from the fact that admission to these faculties is generally much more liberal.(2) Table 25 shows the trend in both these directions in most Member countries. It will be noted that despite the imbalance between them, their objectives still continue to be largely professional in both cases.(3) For example the cuts in defence and space programmes in the United States have had a sudden impact on the number of technological students (-17 per cent in 1971).(4) It will be noted that scientific courses which are hardly suited for functions other than teaching and research and development offer very uncertain employment prospects.

Table 25

Students Enrolled in Pure Science and Technology
(As a Percentage of Total Enrolments)

COUNTRY	PURE SCIENCE				TECHNOLOGY			
	1950-51	1955-56	1960-61	1965-66	1950-51	1955-56	1960-61	1965-66
Belgium	6.3	9.0	12.7	12.4	12.9	11.3	12.6	10.7
Canada	..	..	9.1	13.1	13.1	16.2	13.6	8.8
Denmark	3.6	3.7	6.8	9.5	12.6	13.9	13.3	10.1
Finland	11.8	11.5	13.9	15.8	15.3	12.0	9.4	8.9
Germany	15.5	14.1	14.7	14.2	13.9	17.7	16.9	13.5
Greece	..	9.5	8.9	12.9	..	6.2	7.4	6.5
Ireland	8.5	8.5	13.9	13.0	8.6	9.4	6.5	7.4(1)
Italy	10.1	10.7	11.1	11.7	13.1	11.7	11.4	11.1
Netherlands	10.1	12.9	14.5	13.7	17.5	15.5	17.8	16.1
Norway	12.0	14.8	21.2	21.1	12.7	20.8	17.6	12.4
Portugal	12.0	10.4	15.1	13.4	24.9	20.6	19.5	20.1
Spain	14.4	11.8	18.8	15.6	4.0	5.4	8.5	18.9
Sweden	11.5	11.7	14.8	14.2	17.3	15.2	14.4	11.9
Switzerland	14.7	15.0	18.1	18.3	12.3	12.4	13.1	11.0
Turkey	9.0	10.5	10.7	10.0	5.3	5.7	5.4	7.6
United Kingdom	20.1	23.1	26.0	24.7	12.4	15.6	18.5	19.2
United States	9.3	9.1	11.0	11.4	12.7	8.8	9.5	7.1(1)
Yugoslavia	9.5	9.0	5.0	8.4	19.5	17.8	21.9	23.1

(1) 1964-65.

Source: Development of Higher Education, op. cit., Tables IV-1 and IV-2 and comments

(1) The Flow into Employment of Scientists, Engineers and Technologists (The "Swann Report"), op. cit.

(2) Development of Higher Education, op. cit.

(3) "Technical education ... now holds the threat of unemployment and career obsolescence instead of a lifetime of high earnings that were promised to those who entered the field in the 1950s". H.A. Matthews, "Career Opportunities for Associated Professional Manpower," op. cit.

(4) "The Job Gap for College Graduates in the 70's", op. cit.

Table 26

United States Graduates (Higher Education)

Percentages

Branch	Year		Trend in 69-70 (1959-60=100)
	1959-60	1969-70	
Bachelor's degree			
- human sciences	76.8	81.7	215
- pure and applied sciences	23.2	18.3	159
Total	100.0	100.0	202
Master's degree			
- human sciences	78.7	81.0	290
- pure and applied sciences	21.3	19.0	251
Total	100.0	100.0	281
Doctorate			
- human sciences	53.9	52.9	296
- pure and applied sciences	46.7	47.1	300
Total	100.0	100.0	298

Source: American Council on Education: A Fact Book on Higher Education, 1971.

Table 27

France: Proportion of Arts Graduates Employed in Teaching

Percentages

Employment	Graduates 1952-58	Graduates 1959-65	Graduates since 1966
Teaching	72	72	80
Other employment(1)	28	28	20
Total	100	100	100

(1) Including unemployed, e.g. 4 per cent in the period 1952-58.

Source: "L'affectation économique des licenciés ès lettres" (Distribution of Arts Graduates in the Economy), Centre d'études littéraires supérieures appliquées: supplément à Humanisme et entreprise, Nos. 40, 45 and 52.

In most countries the crisis is most serious in humanities and the social sciences. This branch draws the greatest number of students and often those with the least vocational motivation (see Table 26). The problem of their employment which emerged as far back as the 1960s has been concealed to some extent by the exceptionally big teaching market (see Table 27) but the situation is now reversed and graduates in this category represent the largest number of unemployed (see Tables 5 and 8 above). These branches, in which girls used to be especially numerous (see Table 28) leave their

graduates in a particularly unfavourable position(1) having given them an intellectual status which leads them to expect a level of functions they cannot really claim, as their qualifications are of little use to the economy. Table 29 gives an idea of the devaluation of these degrees.

Table 28

Comparison of the Distribution of Enrolments
by Sex in Selected Fields of University Study: 1965-66
(as a percentage of total enrolments of each sex)

Country	Women			Men		
	Science and Technology	Medical Science	Arts (and Education)	Science and Technology	Medical Science	Arts (and Education)
Austria	6.4	20.9	72.7	34.1	14.9	51.0
Belgium	15.2	21.4	41.7	29.3	22.9	15.7
Canada	8.3	8.7	73.4	32.4	5.1	50.3
Denmark	11.2	23.4	45.5	30.4	20.0	17.2
Finland	15.6(1)	4.8(1)	56.5	41.5	7.4(1)	18.0
France	23.4	13.0	53.7	39.8	19.1	22.2
Germany	11.7	24.9	47.6	37.1	15.3	19.5
Greece	15.0	15.7	27.0	32.1	16.2	5.6
Ireland	12.6	14.0	58.4	36.5	17.7	32.6
Italy	13.0	4.8	65.6	33.5	11.9	11.6
Japan	3.6	8.5	66.5	31.2	3.1	16.7
Netherlands	14.0	16.7	42.9	40.7	15.4	13.8
Norway	16.1	7.6	70.4	45.1	8.0	29.9
Portugal	29.1	9.0	50.8	43.0	15.3	10.2
Spain	20.9	24.0	55.1	47.3	22.3	30.4
Sweden	12.0	6.8	45.8	36.3	11.1	16.0
Switzerland	17.3	17.5	65.2	39.4	15.9	44.7
Turkey	15.9	15.9	38.2	29.4	15.8	22.5
United Kingdom	23.9	9.5	45.4	53.3	10.2	16.0
United States(1)	7.6	5.5	65.3	28.9	4.7	25.1

(1) First degree.

Source: Development of Higher Education, op. cit., Table IV-12.

(c) Employment possibilities

Reactions to the situation which has just been analysed are inclined to vary. A request frequently heard in teaching circles is that jobs should be 'created'; in other words it should be made incumbent on local authorities or firms to recruit specific types of graduates, such as sociologists, following the practice adopted for disabled ex-service personnel. But employment structure depends on the social demand for goods and services. Other suggestions (in Sweden) have been to make-up the salaries of young graduates who refuse to accept functions outside their own speciality or pay them unemployment benefits.

(1) Università e industria, i giovani laureati nell'industria italiana, (Universities and industry, young graduates in Italian industry), Survey by Shell, 1964.

Table 29

France: Monthly income by sex and professional training

Graduated in 1966 / Professional incomes (1970)	MEN						WOMEN						TOTAL					
	Teaching Degrees	Degrees in the human sciences	Degrees in law	Degrees in economic sciences	Degrees of an institute for political studies (1)	Degrees of a commercial institution	Teaching Degrees	Degrees in the human sciences	Degrees in law	Degrees in economic sciences (2)	Degrees of an institute for political studies (2)	Degrees of a commercial institution (2)	Teaching Degrees	Degrees in the human sciences	Degrees in law	Degrees in economic sciences	Degrees of an institute for political studies	Degrees of a commercial institution
Less than 1,200 frs.	14.4	9.0	3.4	0.5	0.8	-	18.1	10.7	4.6	1.6	4.0	-	16.7	10.0	3.7	0.7	1.6	-
From 1,200 to 1,400 frs.	24.2	9.8	7.4	3.3	0.8	-	33.5	17.4	11.7	6.5	2.7	1.9	30.0	14.0	8.5	3.8	1.3	0.3
From 1,400 to 1,600 frs.	21.3	12.3	15.1	9.3	12.7	0.7	22.5	20.1	25.0	21.0	14.7	-	22.1	16.6	17.6	10.9	10.0	0.6
From 1,600 to 1,800 frs.	13.3	9.0	14.3	5.7	5.7	2.1	10.8	18.1	20.4	14.5	17.3	1.9	11.8	14.0	15.8	6.9	11.6	2.1
From 1,800 to 2,000 frs.	9.5	10.7	11.8	8.2	9.8	2.9	6.7	12.8	15.8	14.5	9.3	11.3	7.8	11.8	12.8	9.1	9.7	4.2
From 2,000 to 2,200 frs.	5.6	12.3	10.6	8.0	9.0	6.8	3.3	8.0	8.2	12.9	16.0	15.1	4.1	10.0	10.0	8.6	10.7	8.1
From 2,200 to 2,400 frs.	3.2	9.0	9.2	8.0	6.1	4.6	1.5	4.0	4.6	6.5	6.7	20.8	2.2	6.3	8.1	7.8	6.3	7.2
From 2,400 to 2,600 frs.	3.5	4.1	6.2	13.9	9.8	8.6	0.8	3.4	2.0	11.3	6.7	22.6	1.8	3.7	5.2	13.5	9.1	10.8
From 2,600 to 2,800 frs.	1.7	4.9	4.9	8.0	5.7	7.1	0.6	0.7	1.5	1.7	9.3	9.4	1.0	2.6	4.0	7.1	6.6	7.5
From 2,800 to 3,000 frs.	0.8	4.9	5.5	8.5	10.7	10.0	0.4	-	2.0	4.8	5.3	7.5	0.6	2.2	4.7	8.0	9.4	9.6
From 3,000 to 3,500 frs.	1.6	7.4	5.5	11.6	11.7	24.3	0.9	1.3	2.0	3.2	5.3	7.5	1.2	4.1	4.7	10.4	10.0	21.6
Over 3,500 frs.	1.1	6.6	6.1	15.2	17.2	32.9	0.7	3.4	2.0	1.7	2.7	1.9	0.8	4.8	5.1	13.3	13.8	27.9
Total N ‰	100 945	100 122	100 595	100 389	100 244	100 280	100 1.562	100 149	100 196	100 62	100 75	100 53	100 2,507	100 271	100 791	100 451	100 319	100 333
Mean income (in francs)	1,502	1,994	1,974	2,452	2,504	3,151	1,391	1,621	1,629	1,925	2,033	2,600	1,426	1,741	1,886	2,436	2,370	3,000
Proportion of income below 1,800 frs. (%)	73.2	40.1	40.2	18.8	20.0	2.8	85.0	66.3	61.7	45.6	38.7	3.8	80.6	54.6	45.6	22.3	24.5	3.0

(1) Institutes of Political Studies.

(2) Percentages not significant owing to the smallness of the category.

Source: P. Vrain, Les débouchés professionels des étudiants. (Professional openings for students), Cahiers du Centre d'Études de l'emploi, No. 5, PUF., Paris, 1973, pp. 112-113.

Another reaction has been to limit access to higher education by three methods:

- reinforcing or reintroducing selection;
- developing parallel courses of vocational training for large numbers of students;
- encouraging students to terminate their training earlier and announcing a system of permanent or recurrent education designed to provide professional qualifications.

However, as long as there is a belief in equality of opportunity and the pre-eminence of social and human objectives it is doubtful whether higher education can be restricted. If a mass system of higher education is to be retained, the professional future of its graduates cannot be a matter of indifference. A mass higher education system will have to answer for mass employment and mass student demand.

Economic development has led to a big increase in high level posts although it has at the same time lowered their relative status. This does not so much mean that abilities are under-employed but that they are being used along new lines. This comment on maintaining the level of posts assumes its full significance when one looks at the role of the small and medium-sized firms which should be able to offer graduates considerable opportunities, and in which graduates are in fact under-represented. (see Table 30).

Table 30

Germany: Breakdown of Highly Qualified Personnel by Education Level and Size of Firm(1)

Percentages

Educational level	Size of firm		
	200 to 999 employees	1,000 and more employees	Total
University graduates	14	28	25
Graduates of technical universities	44	48	46
Without degrees	42	24	29
Total	100	100	100

(1) From a survey covering 1,120 persons in 35 firms from four sectors.

Source: L. Alex and G. Welbers, "Forecast of supply and demand of highly qualified manpower in the Federal Republic of Germany,", OECD document, 1971 (mimeo.).

2. Long professional courses

How far is the training they provide related to the functions offered to their graduates? How far should they go towards meeting social demand in view of the existence of short courses?

(a) Increased career prospects

There has been an increase in the number of posts for which these courses traditionally prepare students. There has also been a diversification of the functions to which they provide access and a development and industrialisation of new sectors using sophisticated techniques and employing personnel capable of coping with their requirements, particularly in the tertiary sector. It is, however, difficult to forecast how extensive this increase will be and allowances must also be made for the vagueness of this concept. What is called extension depends to a large extent on the adaptability of graduates and the elasticity of the employment pattern. Not even a professional training course can choose the sector it proposes to serve and its effectiveness depends primarily on social trends.

(b) Objectives of professional training courses

These courses have frequently been introduced to meet a very specific need or to stimulate industrialisation. But they have often changed their nature and have tended to lengthen and become more academic. Their primary objective is still to ensure basic technical proficiency and, subsequently, to prepare students for specific functions. But how far is there a real connection between the functions performed and training received? Although Tables 31 and 32 do not unfortunately give any information as to the connection between functions and academic specialisation, they do provide an initial idea regarding the role of academic training in the assignment of high level functions in firms. They show that current thinking about the chain of command is often mistaken. Moreover, it is well known that internal promotion of non-graduates is the result of their ability and is not the result of a low level of education in the active population generally. Ability is the factor taken into account and although additional in-career training can provide new knowledge and a new technical proficiency, it will hardly make any fundamental change in the outlook and working methods acquired during adolescence.

(c) Professional training and numerus clausus

Even in countries which are favourable to free access, the professional courses in higher education are generally limited to a certain extent often because of the cost of equipment and training and occasionally as a reaction to pressure of demand. A further reason at the present time is the fear of inadequate career opportunities. These courses generally enjoy considerable prestige and this makes them attractive,

Table 31

France: Breakdown of Responsible Staff by Functions in 1968(1)

Function	Graduates	Non-graduates	Total
	Percentages		
Management	12.4	6.4	8.7
Planning	30.7	11.6	19.1
Production	37.2	37.0	36.9
Marketing	8.2	23.0	17.3
Administration	11.5	22.0	18.0
Total	100.0	100.0	100.0

(1) Figures taken from the survey covering the west and south-west of France.

Source: "Les besoins de formation en cours de carrière des ingénieurs et des cadres" (Demand for in-career training from engineers and responsible staff) in Hexagone Initiatives, No. 58, June 1969, p. 14.

Table 32

Italy: Breakdown of Graduates by Function in Industry

Functions	Type of degree				Total
	Engineering	Law and political science	Maths., physics and natural sciences	Economics and commerce	
General management	1.6	8.2	0.5	3.9	2.8
Systems analysis	2.1	1.3	0.5	6.7	2.7
Computer centre	2.2	0.3	6.6	3.2	2.8
Administration	0.8	9.8	0.8	33.5	7.1
Production	11.9	9.5	6.9	1.8	9.2
Research laboratory	14.6	0.5	55.7	-	16.8
Planning office	26.1	-	6.3	0.4	14.9
Production engineering	7.1	0.2	1.7	0.9	4.2
Maintenance and handling	5.2	-	0.2	-	2.8
Buying	1.3	1.5	0.5	2.1	1.3
Marketing	15.3	31.9	9.3	32.3	19.5
Personnel	0.2	23.4	0.2	6.2	4.8
Other	11.6	13.4	8.8	9.0	11.1
Total	100.0	100.0	100.0	100.0	100.0

Source: "Reports by the Working Groups of the Italian National Commission for the training and use of scientific and technical personnel", OECD document, 1971 (mimeo.).

although not suited to students of average ability. There is a considerable drop-out factor, the cost of which is causing concern. It is also feared that the quality of these courses may be impaired if there is a mass influx of students. Consequently, the maintenance of a certain degree of selection is viewed with some favour - this is the case as regards the Carnegie Commission - and it is proposed that short courses should be organised in line with the requirements of the economy and the capacities of the large majority of students.(1)

3. Short-cycle higher education(2)

These courses were instituted to meet social demand, relieve congestion in the long courses, cater for the abilities of average students who otherwise might drop out, and satisfy a certain need for intermediate qualifications. Apart from general problems of admission, content and ultimate objective, the essential problem is the status of these courses. In Western Europe competition from traditional university courses is such that short courses are receiving a decreasing proportion of students.(3) Furthermore, the tendency of the students attending them to switch to a traditional-type university course makes it uncertain whether they are transitory or terminal and whether they are an effective preparation for a career.

(a) The diversity of short-cycle higher education

These are as diverse, sometimes in one and the same country, as their subject-matter and their objectives.(4) Sometimes they are of a general nature like the Junior Colleges in Japan, a feature of which is that 83 per cent of their students are girls, (5) sometimes they represent the first level of university studies while offering the possibility of preparing for a profession ('capacité' in France, 'candidatures' in Belgium before the recent reforms, first-level diploma in Yugoslavia) sometimes they are short university courses (Instituts universitaires de technologie in France and 'Middle Technical Schools' in Spain which are similar to the Colleges of Advanced Technology in the United Kingdom) and they may also provide specialised technical training as a continuation of the technical training given in certain secondary schools.

(b) Development of short courses

In the countries of Western Europe short-cycles of higher education are rarely planned with a view to subsequent transfer to the university. It is therefore the universities which tend to absorb a growing proportion of the new demand for higher

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(1) Less Time, More Options, report of the Carnegie Commission on Higher Education, McGraw-Hill, New York, 1971.

(2) See the analysis in Towards New Structures of Post-Secondary Education, OECD, Paris, 1971, and also Short-Cycle Higher Education: A Search for Identity, OECD, Paris, 1973.

(3) See "Quantitative Trends in Post-Secondary Education in OECD Countries, 1960-1970", Study I of the present volume.

(4) See Towards New Structures... op. cit.

(5) Y. Shimizu, "Short-Cycle Higher Education in Japan", op. cit.

education. Elsewhere, possibilities of transfer are attracting an increasing proportion of students.(1) Moreover, these courses are more 'technical' in continental Europe than in the United States, for example, where a wider range is offered, particularly in the social sciences. As they have only recently been created, especially in Europe, they have no specific significance for young people, their parents and their employers from the standpoint of a first job and a subsequent career. An additional factor which militates against these courses, is that universities have been suddenly opened up to new categories of students, particularly those from the secondary technical schools; sometimes admitting them without an entrance examination.

In order to enhance the standing of their institution the authorities in charge of these courses have frequently encouraged ambiguity as to their objectives, accentuating their resemblance to the university and minimising any differences. But if their objective is to develop a short-cycle education, parallel to that of the universities, it would seem wise to assign them a different kind of objective and not emphasize possibilities of transfer which do not interest the majority.(2) It would be advisable to co-ordinate admission policies. In France, for example, young people who are not admitted to an Institut universitaire de Technology have no other alternative but to register at the university in order to pursue their studies.

(c) Short courses and employment

Experience is still too recent in most cases to provide information on the employment and careers of graduates from these courses. Employers know nothing about their characteristics, abilities or immediate qualification. If the proportion indicated for the long courses(3) i.e. 30 per cent of specialists as against 70 per cent of general students, is adopted as a valid reference and if the specialised nature of the short courses is taken into account, it may be concluded that there is room for a fairly wide range of training but that it should have a more practical character than in the long courses. At the level at which they enter industry these graduates will first have to occupy routine functions which presuppose immediately utilisable technical abilities. This objective is important if allowances are to be made for the potential needs of the small and medium-sized firms which do not get many university graduates and hesitate to employ them. The sectors of industry concerned are moreover associated(4) in the composition of the training programmes concerned and this is the best way of bringing specialised types of training into line with trends in technology and general economic requirements.

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(1) Short-Cycle Higher Education, op.cit., Annex I (statistics).

(2) 15 per cent in the United States.

(3) B.J. Holloway, "Higher Education and Employment; A View from the Interface", in What Kind of Graduates do we need? op.cit.

(4) Examples of Junior Colleges, Instituts universitaires de technologie in France, etc.

Although the outlook on the labour market for shot-course graduates does not seem more unfavourable than for university graduates it must be noted that their career opportunities are more limited as traditional university degrees still carry greater prestige and this is important where promotion is concerned. In all events, this has been the case up to the present but one may wonder whether the position will be as clear-cut in the coming years in view of the fact that status distinctions, which were based on the scarcity of graduates are now tending to fade.

4. Other forms of higher education

These new forms are designed to appeal to sections of the community which have not so far been affected by the general spread of education. They offer equivalent training and qualifications to students who are less inclined to abstract thinking of the academic type and thus meet the need for a wide range of professional requirements. It is hoped to avoid any differenciation between these and the more traditional courses but planners are hesitating between two policies: giving university status to these new forms of training (of the Open University type or the Université de Vincennes) or laying emphasis on occupational qualifications (United Kingdom Polytechnics or the Conservatoire des Arts et Métiers, in France).

Training schemes outside the educational system have hitherto concentrated on enabling young people to acquire a preliminary qualification but the importance of in-career training or even recurrent education is being more and more emphasized. This new outlook results from the need for constant adaptation to a changing world and the policy of giving social objectives priority and reducing the handicap suffered by adult workers in competition with the younger generation which has enjoyed the advantages of the mass system of education(1).

(a) Alternate training and employment

The desirability of providing young workers with a theoretical training to support their practical apprenticeship and giving students initial practical experience has led to a process of alternate training and employment. Schemes for alternating the two types of training vary considerably. They may take the form of practical periods of professional training designed to ensure an initial technical and social contact with the world of industry and to integrate theoretical and practical proficiency. They may also take the form of "praxis", to use a German term, in which a period of practical work precedes the period of professional training in order to help students in their choice of a career. There are also the long-standing sandwich courses of the United Kingdom. These consist of alternate six-monthly periods of practical and theoretical training. Table 33 shows the upward trend in enrolments for these courses and the increasing proportion of university students now involved.

(1) The OECD has done considerable work on these problems: Copenhagen Conference on Continuing Training and Education during Working Life (1970); Venice Conference on The Utilisation of Highly Qualified Personnel (1971); Recurrent Education: A Strategy for Lifelong Learning, OECD/CERI, Paris, 1973.

Table 33

Great Britain: Enrolment in Sandwich Courses

Course	Enrolments					Percentage of enrolments in higher education				
	1966	1967	1968	1969	1970	1966	1967	1968	1969	1970
Teaching	-	-	-	22	-	-	-	-	0.5	-
Medicine, health, pharmacy	39	98	50	74	139	1.4	1.5	0.7	0.9	15.6
Engineering, technology	2136	14176	15653	16712	16785	3.0	19.5	21.9	24.6	26.8
Agriculture	-	-	-	151	316	-	-	-	13.1	26.7
Science	197	2829	3583	4129	4774	1.0	13.3	10.9	19.2	21.8
Social sciences, administration, commerce	412	3171	4491	5880	6551	0.9	6.1	7.7	8.6	9.2
Architecture and miscellaneous	505	542	724	981	1947	5.0	4.9	6.0	7.7	14.4
Humanities, languages	-	-	-	18	16	-	-	-	0.9	0.7
Arts	44	54	66	105	115	0.5	0.5	0.6	0.9	0.1
Total	3333	20870	24567	28072	30643	2.1	11.5	13.1	14.2	15.5

Source: Calculated from: Department of Education and Science, Statistics of Education, vol. 3, 1962, p. 25; 1967, p. 30; 1968, p. 36; 1969, p. 38; 1970, p. 42.

These different schemes are designed to meet different requirements. In the sandwich courses, for example, the theoretical training is particularly appreciated as the special subjects chosen have a bearing on employment and career opportunities in the firms which accept the trainees. Although graduates concerned draw salaries which are often higher than those paid to equivalent staff with university degrees(1) they tend to lose their advantage when it comes to in-career promotion as their general training is less adequate and preference is given to university graduates for management posts.

One difficulty in the alternating schemes is the temporary employment of young personnel without qualifications. As it is, the practical training courses are difficult to organise: the established personnel have no time to look after the trainees who are often left to their own devices or given work unconnected with their requirements. This employment problem in United Kingdom sandwich courses(2) has become critical in the case of the increasing numbers of students who are school-based rather than industry-based. They are unable to find employment in industry which has reached the limits of its capacity for absorbing trainees. The conclusion that has been reached is the need for a minimum of professional training before starting an active career.

(1) A. Crampin and G. Williams, "Education and Manpower. Some Lessons from British Experience", op.cit.

(2) Confederation of British Industries, Supply and Demand in Higher Education, 19th January, 1972.

(b) Part-time courses

Courses of this type have long existed (the Conservatoire National des Arts et Métiers in France goes back to 1794). They also were originally designed to foster social upgrading but they also provide an initiation into advanced training. Having to cater for students from a wide range of social, educational and professional backgrounds they have been obliged to develop special methods, in which there is little room for abstraction. The result is that indispensable theoretical training is particularly difficult to obtain in these institutions. The value of the degrees they award varies and is not clearly established.

The demand from the students in these institutions is for professional courses rather than for a general educational background and for immediately useful courses rather than for more general training for a career. For example, when an attempt was made in Italy to boost the cultural content of their courses the young trainees concerned deserted their institutions in order to acquire the techniques they needed either in industry or Ministry of Labour centres(1).

One important problem is the duration of partial training and the additional work and fatigue involved. In Spain, engineer technicians attend courses every evening for at least five years in order to reach engineer level. Easier access to training seems desirable and legislation of the French type, organising educational leave and providing monthly allowances seems the only way of ensuring success provided it is possible to overcome the psychological resistence of workers who often do not like to admit that they are attending a course.

B. Policy Problems

The influx of students into higher education focuses attention once again on the purpose of higher education which was initially well defined and was in most cases that of preparing students for employment. But a mass system of higher education no longer reserved for an elite has to cater for a clientele which has a different approach to employment, income and a career. An agreement on certain fundamental concepts of general education and particularly higher education seems essential.

1. The social demand for education

(a) Nature of the demand

The concept of social demand is somewhat ambiguous, since it has been defined as being in opposition to economic demand, which is the estimate of the needs of the economy in terms of qualification. In fact, social demand may be considered from two standpoints; first by the aggregate of individual ambitions in a wide range of abilities and interests and secondly the overall evaluation of the resources which a

(1) Reviews of National Policies for Education: Italy, OECD, Paris, 1969.

community wishes or is able to devote to the pursuits of purely social objectives which are linked to the satisfaction of societal demand. The second point of view presupposes an interpretation of individual aspirations although they may occasionally be distorted not only by the multiplicity of decision centres(1) particularly in countries which have a decentralised structure or a highly developed private sector, but also by divergent interests(2). Furthermore, the ambitions of students and their families are difficult to distinguish from their real behaviour which is largely determined by a system which offers little choice between compliance or refusal.

The reasons which impel young people to pursue their studies particularly at the higher level may be listed as follows:

- the attempt to secure a degree as a guarantee of professional status, an attractive income and a secure career: these considerations have encouraged the development not only of professional training courses(3) but also courses in other less utilitarian branches since there is a certain ignorance of career opportunities(4);

- the desire for a degree because it may imply a rise in the social scale and the acquisition of personal status: this attitude may also have a professional angle as senior posts are still reserved for graduates in certain sectors of the economy(5);

- the decisive influence of structures on the orientation and distribution of the student flow, e.g. the absence of jobs for young secondary school leavers which forces them to continue their studies although the latter are not necessarily professional, or current university admission policies and the existence of employment bottlenecks which turn students towards long courses of study;

- the outlook and system of values in the teaching environment which is transmitted to pupils both at secondary and university level and which encourages them to remain in this reassuring environment rather than to face the outside world. Incidentally, the accumulation of degrees often leads to the teaching profession;

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(1) M.R. Lovell, "Employment Prospects for Graduates in the United States", op.cit.

(2) It has been observed for example in the United States that despite the employment difficulties experienced by Ph.Ds, universities are maintaining their training programmes at this level for reasons of prestige or merely to balance their budgets.

(3) "It is not so much a conscious and purposeful decision for a particular occupation..." H. Matthews, "Career Opportunities for Associate Professional Manpower", op.cit. "This obsession with the degree is called our socially conditioned reflex": U.S. Department of Health, Welfare and Education, Report on Higher Education, March 1971.

(4) "In a system of free choice at secondary and university level, even an educational system effectively adapted to employment requirements will not suffice to ensure a "satisfactory" output. Social status appears to play a decisive part and as a degree in our society is the symbol of social standing and the key to promotion in the chain of command, students are necessarily attracted to non-professional courses in order to secure a chance of working for a higher degree". General report, Commissariat général au Plan, Commission de l'emploi, Paris, 1971.

(5) Morikazu Ushiogi, "A Comparative Study of the Occupational Structure of University Graduates", op.cit.

- the pursuit of knowledge and the desire for self-fulfilment are less frequent factors and mainly appear at the level of the first degree or even higher;

- vocation is a further element which is not often clearly defined perhaps because of the uniformity of education, the decline in the level and quality of courses and the difficulty of cutting loose from the usual courses of study.

A critical evaluation of the first results of an educational policy based on social demand leads one to go beyond statistical appearances and to ask whether a policy designed to improve the quality and diversification of education particularly at secondary level would not be more appropriate than a policy leading to an indefinite extension of the school leaving age and whether such a policy which is supposed to be social is really in line with the expectations of students and their parents.

(b) Equality of opportunity

The idea is to enable children from less favoured environments to obtain access to the various branches of education and improve their chances throughout their working lives. However, the labour market is competitive rather than egalitarian(1). Whatever may be the economic and political system, there is always a guiding force. And it is by no means sure that the general spread of education will not reinforce types of discrimination based on other criteria and orient employment structures in a sense contrary to that of a notion of equality. The "common cores", in particular, conceal social inequalities and make it appear that the problem is settled because the choice of studies has been delayed until pupils have reached an age when they can obtain fuller information and are presumed to know their own minds. But, are not the ultimate effects of the "common core" scheme to impose the same value system on widely different individuals and thus sterilise creative ability?

Should not educational policy be designed to offer pupils of 14 in the most advanced countries and, in any case, at post-secondary level, a wide range of choices and to strike a balance between general education and professional training so as to give young people a better chance of obtaining employment, pursuing a career and developing their personality and this together with a system of continuous training?

(c) Raising the school leaving age and the preparation for active employment

The influx of young people reaching the labour market has been reduced in the last few years by the raising of the school-leaving age. The growing demand for qualifications has been widely satisfied by the arrival of young people whose general education is superior to that of their predecessors but whose training, at the same age, is of a quite different nature.

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(1) L.C. Thurow, "Education and Economic Equality", op.cit.

Table 34 shows recent trends in the United Kingdom with respect to the numbers of young people with an apprenticeship contract. But has the raising of the school-leaving age brought with it a more effective preparation for their active life, from the standpoint of qualifications? The answer to this question is not easy to find and will vary according to the level of the qualifications concerned and the countries and educational structures involved. Apart from these reservations, the trends observed hardly seem to suggest any improvement in the average level of qualifications(1) although this was a major objective of educational policy and one of the arguments put forward for increasing budget appropriations.

Table 34

United Kingdom: Young Workers with an Apprenticeship Contract(1)

Year	Number		As a percentage of young workers	
	Boys	Girls	Boys	Girls
1968	109,980	17,118	43.0	7.4
1969	108,239	16,301	42.6	7.1
1970	104,901	15,801	42.3	7.1
1971(2)	95,832	16,670	39.5	7.6

(1) Young workers under 18 who have had a full-time schooling and are in their first job.

(2) Provisional.

Source: United Kingdom Department of Employment.

It can be seen that at post-secondary and higher secondary levels students have largely flowed towards courses which are not vocational in character. Attendance at vocational training courses is, needless to say, not an adequate criterion of vocational training but, paradoxically enough, it denotes a tendency towards concealed elitism(2). At secondary level it is the least gifted children who are channelled into the practical and vocational classes while at post-secondary level they are directed towards the short courses which have been given the responsibility of preparing them for the employment market.

Moreover, the influx into courses of general education has contributed to diminishing the interest they show in real life problems and young people now arrive on the labour markets ill-prepared to tackle concrete problems. Not only are they unwilling to face uncongenial work but they have ambitions incommensurate with their qualifications.(3) In higher education more abstract training generally opens the way

(1) Report by the Commissions of the VIth French Plan, Intergroup "Formation, qualifications professionnelles" (Training and professional qualifications), Documentation française, Paris, 1971.

(2) "At the very heart of our problem is a national attitude that says vocational education is designed for somebody else's children": U.S. National Advisory Council on Vocational Education, Annual Report, 1969.

(3) P.E. Starr, "The Utilisation of Highly Qualified Personnel in a Multinational Corporation", op.cit.

to jobs whose function is well-defined rather than to management posts which call for instant reaction to unexpected situations. Since the Second World War, in the developed countries at least, this is largely consistent with the functions offered by an expanding large-scale industry but it is not certain that economic development will continue in this direction. The functioning of large-scale industry may well be jeopardised by the failure of the smallest firms to modernise. In any event, the super-abundance of graduates is bound to force them into functions or sectors in which they used to be less willing to work; it will not impair their status or their income but will bring about a considerable change in their outlook. For example, the British Confederation of Industries recommends small firms to recruit graduates. In the less developed countries the imbalance is such that graduates are reduced to unemployment or emigration.

It is therefore not certain that the development of education, particularly at the higher level, has really been able to cope with social demand and this includes the demand of students for a professional qualification, a demand which has not been effectively met by the mass system of education.

2. Qualification and degree

The economy does not use graduates it uses abilities and qualifications.(1) Qualification is the ability to fulfil, in an organisation, a function which at a given time is determined by the final demand for goods and services and the structure of employment, in other words the way in which functions are distributed, grouped and organised.(2) At a certain level the definition is less narrow and there are offsetting factors; functions are modified according to the personality of their holders while recruiting is not based on immediate profitability but on the employees' adaptability. This is true for young graduates who seem potentially fitted for posts of responsibility at some future date.(3)

Recruiting may vary according to the prevailing economic climate, the urgency of demand and the possibility of internal promotion, but a large firm with a planned growth schedule may theoretically absorb a constant number of young graduates every year. Governments and employers have an interest in planning their personnel policy(4) but supply may well be unable to cope with demand. How can supply and demand be coordinated? What proportion of the educational programme should be devoted to the preparation of a student for his first job and for his subsequent career?(5)

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(1) Statement by Mr. Folke Halden of the Swedish Confederation of Employers, representing the OECD Business and Industry Advisory Committee at the Venice Conference on The Utilisation of Highly Qualified Personnel, OECD, Paris, 1973.

(2) See the publications of the Centre d'études et de recherches sur les qualifications (CEREQ) France.

(3) A.L. Buley, "Defining the Parameters", in What Kind of Graduates do We Need, op.cit.

(4) Confederation of British Industries, Industry's Links with Education Use of Highly Qualified Manpower, December 1971.

(5) B.J. Holloway, "Higher Education and Employment: A View from the Interface", op.cit.

(a) Professional situation of graduates

A degree is often confused with a qualification. Is this identification justified? Formerly there was a certain correspondence from the quantitative point of view between the level of employment and the level of education. Young recruits from primary schools became unskilled and semi-skilled workers and their only real qualifications depended on their subsequent efforts and experience. Young people with secondary school certificates secured functions as office staff or middle management personnel on which basis they were able to build their subsequent careers.(1) Graduates, owing to their intellectual superiority, their social origin and their limited numbers had automatic access to the highest functions. Tables 35 and 36 illustrate this situation.

Table 35

Italy: Workers by Occupational Category and Level of Education, 1961

Percentages

Occupational category	Level of Education				
	Primary leaving certificate or nil	Lower secondary certificate	Upper secondary certificate	Degree	Total
Unskilled workers	100.0	-	-	-	100.0
Skilled workers	91.5	8.5	-	-	100.0
Middle Management	-	62.3	37.7	-	100.0
Top management and other senior executives	-	-	29.4	70.6	100.0
Total	82.3	9.9	5.5	2.2	100.0

Source: The Mediterranean Regional Project: Italy, OECD, Paris, 1965.

It may be noted that historically it was mainly because of the personal efforts of workers to qualify themselves that the needs of the economy were satisfied while the contribution of the educational system to vocational preparation was often very small. For example, in France the proportion of engineers and senior executives in the metal manufacturing industries who held either a university degree or a post-secondary diploma amounted to 34 per cent in 1956 and 38.8 per cent in 1962 (i.e. an increase) while this proportion rose from 47.8 per cent to 58.7 per cent in the motor vehicle industry.(2) In 1964 only half the senior executives and 13 per cent of middle

(1) "The kind of secondary education which was appropriate at a time when all the products of secondary schools could be absorbed into middle class occupations becomes glaringly inappropriate when some 30-40% of each group receives ten years or more of education", L. Emmerij, "Some Reflections on the Link between Education and Employment", in Higher Education, Amsterdam, 1972.

(2) Union des industries métallurgiques et minières, Les ingénieurs et cadres supérieurs des industries des métaux (Engineers and senior executives in the metal manufacturing industries), Paris, 1962.

management had had the advantages of higher education or of intermediate technical courses. In certain countries and in certain sectors, the proportion may be much smaller but this can mean either that recruitment is by diploma or that there is a reflection of a social hierarchy or simply that there exists an administrative regulation (the existence of "chartered" professions, or the de facto monopoly enjoyed by certain institutes of university standing or the fact that functions are inadequately designated and that qualifications, degrees and levels, are not clearly distinguished).

Table 36

Italy: Level of Education of Persons Employed in 1951 and 1961(1)

Years of schooling	Qualification	1951		1961		Index (1951= 100)
		Number	%	Number	%	
0-5	Primary school leaving certificate or no qualification	14,977,000	88.1	15,966,000	82.3	106.6
8	Lower secondary school leaving certificate	1,041,000	6.2	1,920,000	9.9	184.4
12-13	Upper secondary school diploma	650,000	3.8	1,068,000	5.5	164.3
17-19	Degree	332,000	1.9	446,000	2.3	134.3
	Total	17,000,000	100.0	19,400,000	100.0	114.1

(1) As from 1950, in the United States, only 42 per cent of the manpower had attended school for fewer than eight years; in Japan, in 1959, 24 per cent had attended for 12 years or more (see U.S. Census of Population 1950; Japan, Ministry of Education, Tokyo, September, 1961).

Source: The Mediterranean Regional Project, Italy, op.cit.

(b) Current trends

Available statistics throw little light as yet on how this correspondence between level of degree and level of function has developed: several points may, however, be made in this connection:

- Despite the present-day expansion of education, the mean educational level of the working population is still not very high in most Member countries, and those strata of society which have not benefitted from this expansion will always by and large have a lower status. Furthermore, the more gifted children will continue to make a better showing and no doubt to have greater success in their careers. A correspondence between the two levels will

probably subsist at the two extremes with the middle classes in between; these latter will predominate quantitatively in employment and in the economy and will constitute the main clientele for mass higher education.(1)

- The need for a better theoretical training, and the survival of a certain system of values, result in a sort of co-optation(2) in which a degree may constitute an asset, provided that it corresponds in some way to the qualification required. It has been noted, for example,(3) that employers may recruit graduates in preference to holders of doctorates. The preference given to graduates would thus seem to be less absolute, despite the fact that, up to the end of the last decade, with the single exception of arts graduates, they retained their privileged status(4). It has been observed, however, that during this decade the sectors which developed most were those which were in the best position to make use of present-day higher education courses (teaching, research and development sectors), and that employment prospects in these sectors are today much more limited.(5)

The conclusion is thus by no means clear-cut.(6)

3. Training and specialisation

The difficulties currently experienced by graduates in matters of employment and adaptation have led some to dismiss vocational courses as useless and to attach value only to general courses. But the position of graduates from general courses is no better (unemployment among secondary school graduates in the United States, difficulties experienced by arts graduates); if they do not possess specific qualifications, they are to all intents and purposes unemployable.

In some spheres specialisation seems to be mistakenly regarded as being contrary to adaptability. Adaptability is the capacity to make the transition from one specialised function to some other which normally bears some relation to the first. It entails the possession of a certain sum of basic theoretical and practical knowledge, the acquisition and enlargement of the specialised knowledge required to perform the new function (which will not, however, be wholly unrelated to the previous specialised function) and, above all, the acquisition of the new skills and attitudes required. Stagnation in a career is the enemy of adaptability.(7) If career progression is well organised, obsolescence

(1) "Employment Prospects in the Seventies", in The Utilisation of Highly Qualified Personnel, OECD, Paris, 1973.

(2) L.C. Thurow, "Education and Economic Equality", op.cit.

(3) A. Crampin and G. Williams, "Education and Manpower: Some Lessons from British Experience", op.cit.

(4) H. Goldstein, "Adaptation of Supply and Demand for Highly Qualified Workers in the United States", op.cit.

(5) Morikazu Ushiogi, "A Comparative Study of the Occupational Structures of University Graduates", op.cit.

(6) "Degrees ... are no longer the means of joining the elite, but the expression in statistical terms of the rise in the level of instruction, which has little relation to the cultural level, above all in the educational systems we are offered today": P. Pujas, "La démocratie des cadres", in Le nouveau journal, 1st February, 1973.

(7) Délégation générale à la recherche scientifique et technique (DGRST) France, Carrière des chercheurs et mobilité, December, 1968.

is unlikely to become a major problem,(1) despite the extremely specialised nature of training courses.

(a) Preparation for employment: need for training

It has been concluded that any genuine qualification must entail a certain amount of specialisation, but specialised studies are only one element of training, which must also contain an element designed to ensure adaptability. These two elements, as has been emphasized, are perfectly compatible and it has been noted, at least in continental Europe, that engineers, who are considered as being highly specialised in relation to other professions, are generally the most adaptable when it comes to passing from one function to another and making a successful career. Training must of necessity posses certain general features, which have been defined elsewhere,(2) but at the same time it must be possible to emphasize other elements.

The very spirit of education is the main factor in imparting those fundamental personal qualities which "are at least as important as the subjects (...) studied.... It is essential that these should be taught in such a way and in such a context as to enable the fundamental qualities to be developed".(3) At the higher education level, a crucial problem is to train "doers" rather than "thinkers". The primary requisite of a preparatory course is the integration of theoretical and practical knowledge. At this level, specialisation becomes an essential element of training. Experiments and statistical illustrations are simply a pedagogical device and students will succeed in tackling concrete problems only in fields in which they feel at home. The proper weighting of theoretical and practical instruction necessitates a structured framework and preparation for employment pre-supposes a choice among organised courses, and not simply the accumulation of knowledge or "credits".

The degree of specialisation is a thorny problem. What ever may be the actual ratio of technical and functional specialists to generalists, the economy employs a wide range of technical and functional skills. In education, specialisation is the main-stay of training, and may be the means of facilitating initial employment. The division of responsibilities between the educational system and the employers remains to be established and it would be an admission of defeat to leave the matter entirely in the hands of the employers. Moreover, even though technology is evolving at a more or less rapid pace, its underlying principles remain essentially the same, and they are undoubtedly a matter for the educational system. Confusion frequently occurs, in fact, between specialisation in training and preparation for a particular occupation. As has already been stressed, employers recruit graduates primarily with an eye to their ability to develop and to adapt at a later stage, and this approach would be accentuated were more openings to be offered to graduates in small and medium-sized firms.

The sequence of training is a problem which bulks large in any policy for the differentiation of structures. Traditionally, the sequence was from the general to the

(1) P. Norgren and A. Warner, Obsolescence and Updating of Engineers' and Scientists' Skills, Columbia University, November, 1966.

(2) Short Cycle Higher Education, op. cit.

(3) A.I. Ruley, "Defining the Parameters", op. cit.

particular, the theoretical to the practical, the fundamental to the applied. Today it would be preferable to integrate the practical and theoretical elements at an earlier stage. The concept of a "common core" is open to question. Is not the tendency here to consider specialisation as an end in itself and not as an educational means and should not the "common core" also be defined in terms of the objectives of training? Again, is so-called general education to be common to both terminal streams and transitional streams? In the same way is transfer from short-cycle to long-cycle education which is considered desirable for reasons of equality of opportunity really facilitated by the principle of making general courses and specialised courses follow one up on another within each of these two branches?

(b) Fields of specialisation

The problem of defining such fields is one which needs to be considered at the policy-making level. In practice, the policy to date has been simply to satisfy the needs of the economy as and when these become apparent. Today, the policy of introducing structural reforms calls for more thorough analysis. The specialised subjects taught in vocational courses are extremely mixed. Some belong to particular occupational sectors, with a wide range of special skills (for example, building) while others belong to a branch of science or technology which may in fact represent several specialisations (chemistry is a case in point), or to a non-specific service (for example, local administration) or to a particular function in industrial production or management.

A number of points must be made in connection with the defining of structures and curricula. The degree of specialisation varies in accordance with the level of the diploma; the major fields of activity can be broken down structurally in spatial terms. It would, moreover, be regrettable if concern to rationalise and to unify the structures were to lead to the disappearance or decline of long-established technical training courses, which would not be replaced by university education particularly in the non-industrial craft sectors. These factors are relevant not only for technical and vocational courses but for all education beyond the compulsory schooling stage.

4. Structure of the education system and career education

If the economic progress of the 1960's meant that priority could be given to social objectives and, as far as education was concerned to satisfying social demand, the difficulties of graduates to-day focus attention on the relationship between education and employment; the nature of the education provided, the weight given to vocational training and the structure of the system are such that young graduates frequently arrive unprepared on the labour market. While maintaining intellectual and cultural development and at the same time seeking to cope with the diversity of individual gifts and aspirations, the new educational policy starts from the principle that each child must received what is termed, in particular in the United States, a "career education" before starting his working life. This concern reflects "a far broader understanding

of the purpose of education in today's highly sophisticated, technological, change-oriented society, ... the need not only to fit a person to function efficiently but to make him aware of why he is doing what he is doing ... and to bring relevance to our class-rooms for many who, with reason, now find them irrelevant".(1)

Such a policy obviously concerns the educational system as a whole, or rather, all existing facilities for training, both formal and non-formal which must be co-ordinated and harmonised. The problem however becomes crucial at the post-secondary level, where courses are in principle terminal.(2)

Most of the developed countries are tending to adopt such a policy - more or less explicitly - but it is sometimes applied in a piecemeal way, for example to particular courses (frequently new short-cycle higher courses) so that a large section of students do not benefit by it and are streamed towards education sectors where it has yet to be applied.

(a) Elements of a policy

This policy will be reflected in a strengthening of the vocational component of education. It is recognised that present employment difficulties do not call into question the need for a career education, but rather the way in which it is conceptualised. One must then ask the question as to whether such a policy is likely to lead to an outflow of graduates with qualifications that match employment opportunities or whether it will lead to a surplus of qualifications.

In this connection, it has already been suggested that a certain correspondence can still be expected between the employment pattern and the outflow of graduates. Furthermore, educational policy will not be designed to raise all students to the same level, but rather to one which corresponds to their abilities. It follows that a career education policy will take the form of a qualitative adjustment, in terms of curricula, structure and the criteria governing streaming, rather than a quantitative one, that is, in the sense of making education more selective or restricted or, conversely, more widely accessible. An increase in expenditure may, however, be expected, which will doubtless benefit non-traditional forms of education, particularly insofar as vocational streams are more costly than general streams.

The quantitative problem is simply one of determining the number of young people who can be absorbed annually by the economy at the various levels of qualification.

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(1) S.P. Marland, United States Commissioner for Education, in Education for the Real World, address before the Jefferson County (West Virginia) Chamber of Commerce, 26th May, 1971; quoted by M.R. Lovell Jr. in "Employment Prospects for College-Educated Workers in the United States", op.cit.

(2) "Though its purpose is not solely to provide training for a career, the educational system should nevertheless enable school and university leavers to find rapidly suitable employment with adequate career prospects. This calls for a better link between the structures of the educational apparatus and employment and career opportunities": General Report, Commissariat général au Plan, Commission de l'emploi, Paris, March 1971.

Such estimation is based on somewhat doubtful assumptions(1), but there are possibilities of substitution between levels that are more or less similar and of readjustment of the objectives of the various courses. Hence the risks of imbalance appear to be less than in the case of traditional planning, which pre-supposed a fairly strict correspondence between job situation and training, vocational specialisation being focused more specifically on an initial employment than on a career.

Moreover, and this is most important, this policy, which is based on social demand, does not accept present employment structures as being definitive. It postulates that society cannot suffer from a surplus of education or qualifications and counts upon the dynamism of employment structures to absorb any such, taking for granted that there is no limit to the use to which qualifications can be put in the effort to improve the quality of life.

(b) Structural criteria

A number of problems are involved in the remodelling of structures, and among these are the preference shown by pupils for general courses which are not vocation-oriented, the difficulty of devising vocational courses which are not blind alleys with no possibility of transition to higher education, the difficulty of providing for "bridges" and the conflict between transitional and terminal types of courses. A career education policy is unlikely to provide a complete solution to such problems; it does, however, aim to stream young people sufficiently early on for them to be suitably prepared to enter the labour force; in so doing, it puts the emphasis on the immediate and practical interests of each individual.

The first task is to define leaving levels. Are these to correspond to the levels of entry into the labour force? Another task is to determine the interval between successive levels. This will depend largely on the development of education and on the duration of compulsory schooling. In the developed countries, a two-year interval is usually the norm.

It is important for the way in which the system functions to be clear; trainees and employees must be able to have a fairly precise idea of what leaving certificates represent. Both groups have been somewhat nonplussed by the constant changes in vocational training and by the introduction in certain countries of short-cycle higher education. Old-established diplomas which are held in high repute should be retained, even when the courses leading to them are modified. It is also advisable not to increase the number of certificates and diplomas, which already vary from one university to another, since employers would be unable to keep up with educational policy.

(1) M.Y. Bernard, "Problems of employment for graduates of short-cycle higher education and French experience with university institutes of technology", Short-Cycle Higher Education: A Search for Identity, OECD, Paris, 1973. As an illustration we quote the estimates of the French Commissariat au Plan: within a given age group, 25% are likely to find employment as unskilled manual workers on completing their compulsory schooling, 40% will become skilled workers after learning a trade, 25% will continue their studies to become qualified technicians and 10% will undertake long-cycle higher studies and move straight into a post with professional status.

Another concern of the career education policy is to ensure a systematic link-up of courses. The intention here is to increase the number of options. From a certain age, e.g. 14, and in principle before the age at which compulsory schooling ends, it is planned to offer pupils at two-year intervals, the opportunity of choosing between several streams, most of which will be designed to enable them to start their working life rapidly with a training for a particular occupation.

(c) Application to higher education

Career education policy does not encourage the concept of "multi-purpose" short-cycle higher education courses, which are terminal and vocational on the one hand, and first university cycle on the other. While leaving room for specialised studies, it tends to give greater weight to explicitly vocation-oriented goals. Indeed, such courses might well be given the further objective of providing a rapid vocational training for students dropping out of long-cycle education and even for those who, having completed such education, find themselves without qualifications(1).

Provision has recently been made to ensure the access of technicians to higher education and not only to specialised courses. Although somewhat costly, this measure is a praiseworthy one, ensuring as it does equality of opportunity and recognition of the equivalence of the two cultures.

One consequence of this policy may be a rather authoritarian streaming of pupils. This is in no way a selection process since the hypothesis of a surplus of qualifications is dismissed, but rather a reaction to the tendency of the current flow of students which bears little relation to employment opportunities. This new orientation presupposes a distribution of students firstly by leaving level and secondly by major field of specialisation.

An analysis of the relationship between education and employment highlights the need to modify attitudes to admission and selection policies. If limitations of a financial character are left aside the conclusions must be:

- to accept the pattern of outflow from the educational system in its main lines, while taking account of the distortion of the demand caused by, among other things, the variety of admission requirements; in other words, rule out the principle of selection for admission to higher education;

- to strengthen measures of guidance, particularly in view of the fact that traditional university courses remain divorced from the criteria imposed by employment considerations;

- to adjust the objectives of each course to the functions to which it really leads, by developing basic training (above all in the traditional disciplines)

(1) W.T. Newnham, "Problems of employment for graduates of short-cycle higher education in Canada: CAAT's in Ontario and CEGEP's in Quebec", OECD document, 1971 (mimeo.).

with a view to the pupil's whole career, and by adapting it to the requirements of an initial employment (above all in short-cycle education);

- to develop non-traditional courses, to which graduates can return once they have started their working lives in order to acquire not necessarily a diploma but rather a knowledge of new methods and techniques in relation to their needs.

IV

THE COST AND FINANCE OF POST-SECONDARY EDUCATION

by

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INTRODUCTION

The present paper is divided into two main sections:

(i) A discussion of the reasons for rising costs and the factors affecting expenditure in higher education, preceded by a short discussion of the nature of 'output', productivity and efficiency in higher education.

(ii) Methods of financing higher education institutions and student maintenance.

The problems discussed in these two sections are closely interrelated. They will however be discussed separately, to some extent for purposes of clarity, although the interrelationship between these two main problem areas will constitute an important part of the paper; in particular the link between methods of financing and the efficient use of resources. In sections I and II attention will be given to the distributional impact of various actions. This distributional impact has two aspects (a) the impact on the present and future distribution of income in society, (b) the impact on equality of educational opportunity. The former will be referred to as the equity aspect, and the latter as the equality aspect.

An especially important problem in connection with both forms of impact is that of numerus clausus. Different ways of dealing with this problem will be considered.

I. REASONS FOR RISING COSTS IN HIGHER EDUCATION AND FACTORS INFLUENCING EXPENDITURE

This section is an analysis of the factors affecting expenditure and its development over the period 1960 - 1970. Because of the limited amount of data available to the Secretariat, the number of countries included in the analysis is restricted to twelve. These are Australia, Belgium, Canada, Denmark, France, Federal Republic of Germany, Japan, the Netherlands, Norway, Sweden, the United Kingdom and the United States. Data are of varying quality and the conditions somewhat different in each of the countries, but the twelve country sample is large enough to illustrate basic issues which obtain in most of the OECD area, with the possible exception of some of the developing Member countries.

1. Expenditure trends in the last decade

Over the last decade recurrent and capital expenditure on higher education increased faster than total educational expenditure, total public spending and the gross national product. In Table 1, expenditure on higher education is shown in absolute terms and in Table 2 the growth rate of these expenditures are compared to the growth of total educational expenditure, total public expenditure and the gross national product. This massive rate of growth in educational expenditure in higher

education has been accompanied by a pronounced rise in the unit cost of educational services, here defined as recurrent expenditure per student year. On the assumption that cost per student can be regarded as a price index for higher education it is instructive to compare rates of increase in cost per student with trends in prices of other goods and services. The best index of overall price trends throughout the economy is probably the implicit price index (deflator) for the gross national product. In Table 4 the national growth rates for cost per student and the GNP deflator is shown for each country for the period 1961/70.

It is evident, though the estimates are very crude, that the price index for higher education has increased at a faster rate than the general price level. It is argued below that this relatively faster increase is largely unavoidable even though it may be possible in the future to reduce the rate of growth of unit cost somewhat. As higher education now accounts for almost 1½ per cent of the gross national product on average in OECD countries, such a reduction in the growth rate of unit cost will imply large absolute cost savings.

Tables 1 and 3 explain indirectly the current concerns with cost and financing in higher education. In current prices, total expenditure in this sector has increased annually by an average of 20 per cent compared to 15 per cent for total educational expenditure, 13 per cent for public expenditure and 10 per cent for the gross national product. The average share of GNP allocated to higher education has more than doubled in the last decade from 0.5 per cent to 1.3 per cent. However, as the tables show there are considerable variations from country to country. In Canada, expenditure on higher education increased almost three times as fast as public expenditure while the increase was only slightly higher than government civilian expenditure in the Federal Republic of Germany, and in Japan slightly smaller. Japan is the exception in that both educational expenditure, GNP and public expenditure all increased at a higher rate than expenditure on higher education. One of the factors explaining this relatively smaller growth rate of higher education expenditure in Japan is the existence of a large private university sector with very low unit costs, which has expanded at a much higher rate than the more expensive but smaller public sector. From being a rather small item in the total economy, higher education now carries much more weight both in the economy and the public budget and its share is still increasing rapidly. It is therefore necessary to analyse the factors which have contributed to this rapid increase in the past and to see what are the options, if any, for slowing down growth in total costs in the future without endangering the quality of the 'output' of higher education.

One important factor in this growth of expenditure is of course the growth in total enrolment. In Table 5 the average annual growth rate for 1961/70 is given for each of the countries in the sample.

If we compare Tables 3 and 5 we find that the average rate of growth in expenditure on higher education has been about double the growth rate of the number of students. A rough estimate of the difference between the two growth rates may

be seen in the growth of unit expenditure or unit cost, which grew by around 9 per cent during the last decade (Table 4).

In order to interpret data on costs and the use of resources in higher education, one must look in some detail at the characteristics of higher education as a producer of educational services.

2. Nature of the 'output'

The 'output' of higher education may be described in terms of different objectives or goal areas. Some of these objectives are:

(a) contribution to economic growth and to an efficient allocation of highly qualified manpower;
(b) production of basic research which is an objective in itself, but is also probably a major determinant of the quality of teaching;
(c) satisfaction of aggregate private demand for higher education;
(d) contribution to equality of educational opportunity in higher education.

An estimate of the total product in higher education implies that the different goals of higher education be aggregated in a coherent way. To do this we need measures of performance within each of the four goal areas. The difficulties on purely technical grounds in constructing such measures are considerable, for we can never expect the objectives to be fully defined or readily quantified, and different measures imply different social theories. Furthermore the list of objectives is not exhaustive and there is thus a fundamental uncertainty about what actually constitutes the 'output' of higher education.

As if this were not enough there is a more fundamental difficulty. The choice of objectives and the importance attached to each objective is political. There is therefore no universal agreement about the goals of higher education or about the relative importance of each goal. It follows that there is disagreement about overall 'output', as different groups give different weights to the different goals so that, in principle, the 'output' of higher education does not exist.

There is then a fundamental uncertainty about how to measure the goals of higher education and there is considerable disagreement about the importance to be attached to each of these goals. Since the 'output' of higher education is only partly evaluated by the market through the earnings of different types of graduates, the political decision-making process must be a substitute in higher education for the allocation process of the market.

These remarks about the nature of 'output' are very important for they indicate the difficulties to be confronted when undertaking studies of productivity or efficiency in higher education.

Table 1

Total Expenditure on Higher Education in Current Prices
1961 and 1970
($ millions at current exchange rates)

	1961	1970
Australia	97.0	278.3
Belgium	35.5	231.4 (1969)
Canada	201.3	1,960.0
Denmark	25.7	216.1
France (universities)	192.2	905.2
Federal Republic of Germany	348.2	1,338.0
Japan	216.6 (1962)	1,757.4 (1969)
Netherlands (universities)	134.0	435.5 (1969)
Norway	17.9	70.3
Sweden	35.0 (1960)	329.4
UK(1) (universities)	281.6 (1962)	800.4 (1969)
USA	5,800.0 (1959/60)	24,900.0 (1970/71)

(1) England and Wales.

Sources: Except Australia, Denmark and USA, UNESCO questionnaires on expenditure and enrolment.

Denmark: De videregående uddannelser 1970-71.

USA: The More Effective Use of Resources, Carnegie Commission on Higher Education, McGraw Hill, New York, 1972.

Australia: Bruce Williams, "The Escalating Costs of Universities", The Australian University, Vol. 10, No. 2, September 1972.

Table 2

Percentage of GNP allocated to Higher Education

	1961	1970
Australia	0.3 (1958)	0.8 (1970)
Belgium	0.2	1.0 (1969)
Canada	0.5	2.7
Denmark	0.3	1.2
France	0.2	0.6
Federal Republic of Germany	0.4	0.7
Japan	1.2	1.0 (1969)
Netherlands	0.3	1.2 (1969)
Norway	0.3	0.7
Sweden	0.3	1.0
UK	-	-
USA	1.1 (1959/60)	2.5 (1970/71)
Average	0.5	1.3

Sources: As Table 1 and National Accounts for OECD Countries, OECD, Paris, 1972.

Table 3

1961-1970 Growth Rate in Current Prices of Higher Education Expenditure compared to Growth Rate of Total Educational Expenditure, Public Expenditure and GNP

	Higher Education	Educational Expenditure	GNP	Public Expenditure
Australia	12.4	-	-	-
Belgium	20.5	10.0 (1960-69)	8.4	11.1
Canada	29.5	18.2 (1961-69)	8.7	10.6
Denmark	28.0	20.5 (1960-65)	11.0	15.9
France	20.5	18.4 (1960-69)	10.7	12.4
Fed. Rep. of Germany	12.4	11.2 (1960-69)	8.3	10.2
Japan	13.2	15.8 (1960-69)	16.1	14.9
Netherlands	17.6	14.1 (1960-68)	10.7	14.1
Norway	16.4	13.9 (1960-69)	9.7	12.9
Sweden	25.5	16.7 (1960-69)	9.0	14.1
UK	18.7	11.4 (1961-67)	6.9	10.2
USA	14.2	11.8 (1959-69)	6.8	10.9
Average	19.5	14.7	9.7	12.5

Sources: Higher Education as in Table 1; Total Educational Expenditure; UNESCO Statistical Yearbook 1971; GNP and Public Expenditure: National Accounts for OECD Countries, OECD, Paris, 1972.

Table 4

Growth Rate of Unit Cost in Higher Education,

and GNP Price Index

1961-1970

	Unit Cost	GNP Price Index	"Real" Unit Cost
Australia	5.2	3.2	2.0
Belgium	14.2	3.8	10.4
Canada	12.7	3.2	9.5
Denmark	14.0	6.0	8.0
France	7.7	4.3	3.4
Federal Republic of Germany	3.8	2.9	0.9
Japan 1) all universities	5.8	4.3	1.5
Japan 2) public universities	8.2		
Netherlands	12.4	5.2	7.2
Norway	7.9	3.7	4.2
Sweden	10.4	4.3	6.1
UK (universities)	8.4	3.8	4.6
USA	6.1	2.7	3.4
Average	9.0	4.3	5.1

Sources: As Table 3 and National Accounts for OECD Countries, OECD, Paris, 1972.

Table 5

Growth Rate of Student Population

1961 - 1970

Australia	9.3*
Belgium	10.2
Canada	17.7
Denmark	8.7
France	13.6
Fed. Rep. of Germany	9.7
Japan	15.4
Netherlands	10.2
Norway	12.0
Sweden	13.2
UK	9.9
USA	6.6
Average	11.3

* Full-time equivalents.

Source: As Table 1.

The productivity of a certain process is the ratio of an indicator of total 'output' to an indicator of total input, such as teaching load of professors and lecturers, the quality of their teaching, student time, etc. Changes in productivity over time are measured by the changes over time in this ratio. It follows from the definition of productivity that this concept is dependent upon the multi-dimensional goal structure of the education system, we cannot therefore be any more conclusive about the basic issue of productivity than we can about the product of higher education.

The concept of efficiency concerns the use of resources in higher education. If we can agree on how to measure the different dimensions of 'output' and how to combine them we can measure the degree of efficiency if we know how different combinations of input affect 'output'. For it is then possible to find the combinations of inputs which maximise 'outputs', within the overall constraints set by the university budget or the budget for the whole higher education sector. A combination of inputs producing maximum 'output' is called an efficient combination. Even disregarding the problems of measurement involved, the concept of efficiency is just as dependent on the nature of 'output' as is the concept of productivity. In order to be able to study the efficiency of higher education we have to know how to construct indices of the objectives of higher education and we must agree on how to relate these indices to each other. In addition we must know the relationship between these indices and various combinations of input. For all these reasons studies of efficiency and/or productivity in higher education are exceedingly difficult to carry out.

Nevertheless we shall argue below that one important reason for the cost pressure in higher education seems to be that there is a slower growth in productivity than in the rest of the economy. This will be argued in a positive sense, i.e. as an explanation. There are no normative overtones, for we cannot on that basis draw the conclusion that resources have not been used efficiently. The definition of productivity, as set out above implies very little about efficiency and use of resources. Since techniques of production change over time, an activity which shows productivity increases over time might nevertheless be conducted inefficiently. On the other hand an activity which is conducted efficiently may not show productive gains over time if there is no technical progress in this particular line of activity. The statement therefore that productivity changes more slowly in higher education than the rest of the economy has no implications for how higher education in fact utilises resources but is rather a statement about the nature of things, as it were, and why we may expect a slower growth in productivity than elsewhere in the economy. Lower productivity indicates that we must expect a more rapid increase in costs in higher education than in the rest of the economy. It is likely, however, that some waste of resources occurs and this may be unavoidable, for it is impossible to state which of the feasible alternatives open to us is the most efficient and indeed the degree of efficiency is only one of the many factors affecting choices in the organisation of higher education.

In view of these difficulties - uncertainty and disagreement about the nature of 'output' of higher education - it is not possible to undertake any deeper analysis of productivity or efficiency in this sector and the possibility that our conclusions

are wrong is therefore fairly large. It is simply assumed that in so far as the different objectives demand resources, the conditions for higher productivity growth are the same within higher education as in the rest of the economy. There are many other definitions of productivity which are equally relevant. We shall however be content with discussing the development of labour productivity, i.e. the ratio of output to labour input since, the large share of labour in the current costs of higher education - approximately 80 per cent - means that it may be taken as the most important indicator of productivity.

3. Productivity in education

The basic reason for the cost pressure in education lies in its 'production structure'. The economic implications of this production structure are such that it would lead us to expect rising costs per student even if institutions were not making expensive innovations, such as adopting new techniques of instruction, new fields of research and teaching or changing the distribution of the student body to studies with higher unit costs. Even if higher education turned out the same 'product' year after year there would still be a tendency for costs per student to rise faster than the general price level.

In order to substantiate this propostion it is necessary to outline the relationship between costs and 'output' of higher education and show the nature of the proposition is very probably a consequence of these relationships.

Even in the absence of reliable evidence it seems reasonable to suppose that growth of productivity in higher education has been lower than in the rest of the economy. Factors generally responsible for increasing productivity in the economy, such as the introduction of new technology, increases in human and physical capital and economies of scale, have not affected higher education to the same degree as, for example, modern industry. Two examples from the literature are illustrative: a study by Woodhall and Blaug showed that the proportion of teachers' and students' time in total input had fallen from 53 per cent in 1938 to 51 per cent in 1962.(1) We may conclude therefore that the labour intensity in British universities was fairly constant during the period 1938 to 1962. The same conclusion can be drawn from data presented by William Hettich in a study of Canadian university education.(2) Resource contributions by students fell from 67 per cent to 65 per cent of total instructional costs between 1956 and 1967, while a rough estimate of teachers' share of total operating expenditure increased from 61 per cent in 1956 to 63 per cent in 1967.

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(1) M. Woodhall, M. Blaug, "Productivity Trends in British University Education 1938-62", Minerva, 1965.

(2) W. Hettich, Expenditure, Output and Productivity in Canadian University Education, Economic Council of Canada, Ottawa, January 1971.

When there is a difference in the increase in the productivity of two sectors, unit costs will almost automatically increase in the sector experiencing the lowest growth in productivity. A simple example will serve to illustrate this. Assume that the economy is divided into two sectors, one in which the activity is rising and another in which it is constant, e.g., higher education. In the former sector productivity increases by an average 4 per cent per year compared to a zero rate in the latter. Assume further that in both sectors money wages increase at the rate of 4 per cent per year. This means that each year the wages of a typical worker in the first sector increases by 4 per cent but since his productivity also increases by 4 per cent labour costs are constant. In the higher education sector where there is no productivity increase labour costs will increase by 4 per cent annually and the larger proportion of wages in total costs the larger the resulting increase in costs. If wages constitute 50 per cent of total cost the increase in unit cost will be 2 per cent per year, while if this proportion is 75 per cent the rise in unit cost will be 3 per cent. The labour intensity of production in this sector is therefore an important explanatory factor behind the rise in unit costs. Sectors which do not enjoy any productivity increase will therefore experience different increases in unit costs depending upon the proportion of wages in total costs. A larger proportion of wages in total cost in higher education than in the rest of the economy, 0.80 to 0.65 versus 0.60, therefore explains some of the increase in unit cost but, as is clear from these figures, only a minor part. In other words unit costs must be expected to rise faster in higher education than in the rest of the economy. The mechanism sketched here is the one believed to underlie the rise in unit cost in higher education in OECD Member countries from 1961 to 1970, as shown in Table 4.

One could argue that the rise in unit cost is a consequence of a rise in the quality of higher education and that this rise therefore exaggerates the real increase in unit cost. This is without doubt true but it is equally true for the rest of the economy. Very few price indices, if any, are corrected for quality improvements in goods and services. Thus both the educational price index, i.e., unit cost and the GNP price index, overstate the rise in cost of production of a homogeneous good or service. However, the difference between them does reflect a lagging productivity in higher education, unless one is prepared to argue that the increase in quality has been so much higher in higher education than elsewhere as to explain the whole difference in the rise in costs.

4. Analysis of further factors affecting unit costs in higher education and the possibilities of increased efficiency

We shall discuss better use of resources in terms of current expenditure and current cost leaving aside the problems of capital cost and control of investment activity. This is not because we regard the latter problems as unimportant, far from it, but because very little comparable material exists and because many of the problems in this area seem to be specific to the different institutions.

In this section we shall provide a detailed analysis of the increase in unit cost or recurrent expenditure per student year. Unit costs can be broken down into two main components: (a) remuneration of personnel and (b) recurrent expenditure other than remuneration of personnel. The former is by far the most important cost factor, as is shown in Table 6. Only small variations in data between countries could be detected, so, if data are representative, this table illustrates well the present distribution of total current expenditure among the different categories. We have previously shown the development of unit costs over time, 9.0 per cent on average in current prices and 5.0 per cent on average in real prices. Given the cost structure exemplified in Table 6, it is likely that most of the growth in average real unit cost can be accounted for by the changes in the student/personnel ratio and the average salary in real prices.

There is very little data on developments in student/personnel ratio but we have access to data on the student/teacher ratio. It is likely that growth in the number of other types of personnel has been closely related to the growth in the number of teachers, so we can assume that changes in the student/personnel ratio are the same as those in the student/teacher ratio. In Table 7 we have calculated the student/teacher ratio for 1960 and the latest year available. These ratios represent the average for the whole university system. They cover large variations from faculty to faculty and from department to department. By and large the number of students has increased faster in faculties with a larger than average student/teacher ratio. An increase in the overall student/teacher ratio is therefore partly a reflection of the change in the distribution of students in faculties. The large increase in the student/teacher ratio in Norway and Sweden, for example, must be related to this factor, but it is also likely that the student/teacher ratio increased within each faculty in these two countries. The increase in Japan is partly due to the more rapid growth of the private university sector, which has a considerably higher student/teacher ratio than the public sector. The reduction in the ratio for France must, on the other hand, reflect a general reduction in the number of students per teacher in all or most faculties. Except for France the general impression is, therefore, that the student/teacher ratio has remained roughly constant or that a slight increase has occurred. The important question is whether this experience represents the options for the future.

The student/teacher ratio is made up of various factors: (a) the teaching load (teaching hours per teacher), (b) class size and, closely related to class size and teaching load, (c) variety of courses. Another factor which has been discussed recently and which could effect the student/teacher ratio considerably is the introduction of (d) new technologies such as television, video tape, film, etc.

Surveys reported in the Robbins Report, the Carnegie Commission Report and by the CERI (1) show that the teaching load does not constitute a major portion of the working hours of teaching staff. The Robbins Report estimated that out of 40½ hours

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(1) B. Predriksen, Subject Field and Regional Variations in Student/Staff Ratios, Academic Programmes and Recurrent Expenditure, OECD/CERI, Paris, 1971.

Table 6

Distribution of Total Annual Recurrent Expenditure on Different Staff Categories: Average for 13 OECD Countries in 1969

Subject field	Total	Academic	Administration	Technical
Pure Sciences	85	68	5	12
Technology	85	65	6	14
Medical Sciences	87	62	7	18
Humanities	92	83	6	3
Law	89	76	8	5
Social Sciences	93	84	7	2

Source: B. Fredriksen, Subject Field and Regional Variations in Student/Staff Ratios, Academic Programmes and Recurrent Expenditure, OECD/CERI, Paris, 1971.

Table 7

Student/teacher ratios: 1960 and 1970

	1960	1970-71
Australia	12.0	12.2
Belgium	10.4	8.0
Canada	11.6	15.3
Denmark	9.5	12.2
France	25.7	15.4
Fed. Rep. of Germany	11.8	11.2
Japan	10.1	18.4
Netherlands	21.3	18.4
Norway	7.2	11.3
Sweden	10.1	19.5
UK	8.6	9.6
USA	10.4	9.8

Sources: Quantitative Trends in Teaching Staff in Higher Education OECD, Paris 1971;

1970-71: Temporary data calculated by the Secretariat (1972).

per week an average of 7½ hours were spent on actual teaching and 5½ hours on preparing for classes and correcting students' work. The Carnegie Report gives a very similar picture for the United States but, in addition, this Report provides evidence that a considerable decline occurred between 1931 and 1969 in the proportion of working hours allocated to teaching. On the average the teaching load (full-time equivalent) was approximately 50 per cent higher in the 1930's than it is today. It varies considerably between institutions, i.e., between private and public, and between graduate institutions and others. In the CERI Report there are data on the average teaching load in different subject fields for 13 OECD countries. There does not seem to be any significant difference in the teaching load between subject fields and the average size of the teaching load of 8½ hours per week is roughly consistent with the estimate reported by the Robbins Committee.

The possibilities of increasing the teaching load depend upon the role of research in higher education and the extent to which the present division of working hours between teaching and research is really necessary to uphold the quality of teaching. It is also arguable whether the distinction between teaching and other work activities, such as research, is meaningful, especially in graduate institutions. The only option available therefore which could have a considerable impact on the overall student/staff ratio is the creation of new institutions such as short-cycle higher education institutions and the Open University where teaching is not research based. There is considerable evidence that the present structure of higher education is not consistent with the preferences of many students and that more of the same is not desirable. By developing short-cycle institutions the overall teaching load can be increased without impairing the character and quality of traditional institutions with their emphasis on research.

Class size is another important variable affecting the student/teacher ratio and is also closely related to the variety of courses offered and the scope of research activity. Variety in courses might be a necessary condition for a close relationship between teaching and research, especially on the graduate level, as this sometimes represents the only way a teacher can disseminate the results of his research to students. Still there seem to be possibilities for increasing class size without reducing the quality of teaching or research. The CERI Report for example shows that lectures are, on the average, given to classes of less than twenty students.

The Robbins Report estimated that 25 per cent of all lectures in English universities were given in classes of less than ten students. Thus there might be room for a considerable increase in the size of classes, especially since over decades of educational research no impact has been noted on the teaching/learning relationship, when size of class is varied. In addition a reduction in the variety of courses can contribute to an increase in average class size. There is no need for all universities in a region to cover every research speciality. More institutional co-operation can lead to specialisation and thereby to better use of resources for teaching and research.

There has recently been much discussion about the role of media such as television, film, video tapes, etc., in university instruction. It is argued on the basis of recent evidence that the improvement in student performance, through the utilisation of the new media, is not significant compared to conventional methods, but if new media are used on a large scale the cost per student hour may be much smaller than that of conventional instruction. The scale required is often much too large to apply to the present size of many higher education institutions, let alone departments or faculties. If it is found desirable to introduce these new methods, a closer co-operation between institutions is clearly called for. It is also necessary to change the incentive system of university teachers. At present there is very little incentive for teachers to introduce new teaching methods as pay and status is determined by research 'output' rather than teaching effort.

So far our discussion has been related to changing the methods and organisation of teaching within the various departments and/or faculties. Comparing faculties or departments is much more difficult as the objectives are different and their methods of teaching often reflect technological differences between subject fields. Nevertheless, questions have been asked about the tremendous variation in student/staff ratios between the various departments. According to the Carnegie Report this ratio can be ten times greater in some departments than in others within one single institution. On the average, student/academic staff ratios varied between 4.9 (geology) and 22.7 (law) for the thirteen OECD countries analysed in the CERI report. Almost all variation in student/staff ratios was explained by the subject field classification and only a minor part by the nationality classification (80 per cent of the variance as against 9 per cent). This suggests that technological differences in instruction and different objectives explain most of the differences between subject fields and that little insight concerning more efficient use of resources is likely to be gained from a comparison between subject fields.

Where does this leave us? The outcome of our discussion seems to be that an increase in student/staff ratio which would not jeopardise research, quality of teaching or other objectives is likely to be limited. The Carnegie Commission has argued that an increase of 1 in the overall student/staff ratio is possible within the next decade without reducing the growth of 'output'. If this is likely for the United States, it is probably beyond the reach of European countries owing to less variation in structure and methods. The Carnegie proposal represents a 10 per cent increase in the student/teacher ratio, if the figure for 1970 of 9.8 shown in Table 7 is correct. If we assume that other ratios move <u>pari passu</u>, an increase of 10 per cent in the student/teacher ratio will lead to a reduction in the growth rate of unit real costs of 0.8 to 0.9 (in absolute terms) per year. As we have already pointed out this is likely to be beyond the possibilities of European countries, but it may be illustrative as an estimate of the maximum increase in efficiency possible over the period. We can then calculate the reduction in current expenditure which would follow by 1980 compared with the trend 1960/70. This illustration is given in Table 8. Cost savings shown in Table 8 are an illustration of the magnitude of savings which can be obtained through a better use of resources. However we need to

Table 8

Cost savings for 1980 if Unit Cost is reduced by 0.9 per cent annually compared to Trend 1961-1970
($ millions at 1970 exchange rate)

Australia	70
Belgium	72
Canada	392
Denmark	37
France	229
Fed. Rep. of Germany	121
Japan	193
Netherlands	43
Norway	9
Sweden	49
UK	120
USA	2,980

know much more about the existing options based on efficiency studies within single institutions, which may reveal more about the possibilities for better resource allocation than we have been able to give here.

The development of salaries and earnings for teachers and other personnel will of course have a considerable impact on the growth of unit cost over the next decade. There is however very little one can do to influence this development. In countries like the United States where academic salaries by and large are determined in a competitive market, some conclusions can be drawn on the basis of supply trends in the recent past and the predicted growth of the higher education system. The rate of increase in faculty salaries has apparently fallen recently and this is expected to continue. "Looking ahead the rate of growth in compensation will probably be much less than in the 1960s ..... the combination of greatly increased supply of qualified personnel and the financial squeeze on institutions can hardly produce any other results."(1)

(1) American Association of University Professors, "The Threat of Inflationary Erosion". Annual Report on the Economic Status of the Profession, 1968-69, AAUP Bulletin, Summer 1969.

In Europe the future growth of wages is much more difficult to foresee for in most of these countries the salaries of university personnel fall within the civil service structure and are therefore much less influenced by changing supply and demand patterns for academics than in the United States. No one will argue of course that decisions on earnings of different types of personnel are taken in vacuo, but changes must be expected to occur much more slowly and with less impact when supply and demand conditions are changed. The exception might be the United Kingdom where the situation is somewhere between the United States and the rest of Europe. In the UK, academic salaries are determined outside the civil service structure but influenced by strong unions, and are the outcome of negotiations between the government and the unions. This means that the supply and demand conditions in the market of academics will influence salaries even if not to the same extent as in the United States. "During the last five years there have been enormous numbers of recruits to university teaching drawn from relatively small cohorts of graduates. In the next five years even with constant staffing ratios fewer teachers will be recruited and they will be drawn from much larger cohorts of graduates ..... if on top of this the student/staff ratio worsened, the number of recruits could be tiny."(1) It seems likely therefore that faculty salaries will not increase in the UK at the rate they have done in the past. However this conclusion cannot be drawn for most of the other countries in Europe where it is probably safest to assume that salaries will follow the trend of the past, since their growth will be determined by the development of civil service salaries and only marginally influenced by supply and demand conditions for academics, except in the very long run.

Other possibilities for cost savings:

5. Duration of study

There is a wide range of variation between countries in the length of university courses, with a range from three years in the UK to seven years in Denmark and the Netherlands. It seems evident that there is scope for cost reduction in the latter countries by reducing the length of courses, particularly when we note that the academic year usually includes more than twenty weeks holiday; a relic of the days when schooling was geared to the cycle of agricultural production. Educationally, the long summer vacation is probably a waste of time. Even in Britain, where students can receive a maintenance grant during the vacation and therefore do not need to find temporary employment, little studying is done. The Hale Committee in 1964 discovered that "for a large proportion of students the long vacation is, academically speaking, time largely wasted .... one hour a day or less of study was claimed by 53 per cent, and more than one hour but less than three by 31 per cent". (2)

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(1) P.R. Layard, J. King and C. Moser, The Impact of Robbins, Penguin, London, 1969, p. 94.

(2) University Grants Committee, Report of the Committee on University Teaching Methods, (Hale Report), HMSO, London, 1964.

However, educational systems differ considerably one from another. In some, students are required to undertake continuous study, and in others, they can leave and return as they wish, take part-time jobs, etc. Highly organised and rigid systems will always seem more efficient than systems where students are free to divide their time between work and study. But the differences in length of study between countries are so large that it would seem worth while to examine in more detail the reasons for the wide differences in length of study as between say Japan and the UK on the one hand, and Denmark and the Netherlands on the other. Partly because of differences in length of study, partly because of differences in cost per year, in 1969 the average Japanese graduate cost $3,256, whereas the Dutch graduate cost $22,789.

The costs so far studied are those which have a direct bearing on the current public budget for higher education. In addition, the cost of education to students includes earnings foregone. Estimates by the Secretariat suggest that earnings foregone per student in higher education (corrected for part-time earnings) are about equal to 50 per cent of average per capita earnings in the economy.(1) Earnings foregone are in general a bigger element of cost in higher education than the direct cost of educational services as shown in Table 1.

The inclusion of earnings foregone in the cost of education greatly reinforces the case for attempting to reduce the length of the educational process. In the Netherlands, for instance, a reduction of the average length of study from seven to four years would reduce the number of students in the educational pipeline by 43 per cent, direct current costs would fall by $128 million, and earnings foregone would drop by the same amount. Even if direct current expenditures per student had to be increased to keep the quality of education constant,(2) these could be almost trebled without any increase in total social cost.

6. Short-cycle institutions

It has been argued that institutional change, such as the introduction of short-cycle higher education or moves to orientate students towards such institutions, will lead to a reduction in overall unit costs. Short-cycle institutions do not however always have lower costs per student year. In Norway and the UK the cost per student year of short-cycle higher education is probably higher than that in university

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(1) The Working Group of the Education Committee on the Review of Methods of Educational Financing (December 1972) assumed that earnings foregone for the age-group 15-25 amounted to 40 per cent of average income per employee. If this is roughly correct, it would seem that our estimate of 50 per cent for the age-group 20-25 is a very conservative one.

(2) This assumes that there are substitution possibilities between input of student time and other inputs.

education. It is irrelevant to compare the unit cost of the whole university sector with the unit cost for short-cycle education for these are not alternatives. One can only consider university studies which can be replaced by short-cycle higher education. On the basis of present data it is not possible to conclude that short-cycle higher education is cheaper than other types of higher education, since relevant unit cost data for the latter do not exist. In the case of Norway, where it is possible to make a comparison between costs of short-cycle higher education and university education, short-cycle higher education is clearly more expensive than the corresponding alternatives in universities.

The development of short-cycle institutions may however reduce the growth of total costs of expenditures. Both the Carnegie Report and the Royal Commission on Post-Secondary Education in Norway have argued that a large proportion of students are reluctant members of conventional institutions in higher education. These students may be reluctant not because they were forced into higher education per se but because the alternatives open to them outside the university sector, were not regarded as relevant alternatives. Rather than be without any higher education they chose to enrol in a university. Short-cycle institutions may offer a useful alternative to these people and, in doing so, may reduce the total number in higher education at any time. This will slow down the growth in total expenditure and also reduce earnings foregone. At the same time the total student population will tend to be more satisfied. It would therefore seem that short-cycle institutions offer one of the few political options which allow total cost to be reduced and total 'product' to be increased simultaneously.

We have outlined what we believe to be the most important areas where cost savings may be made without reducing overall benefits, so that efficiency in higher education may be increased. We have not mentioned the benefit side, or how to increase the benefits without increasing overall costs. Yet one dimension of the 'product' which is often discussed as a measure of efficiency is the proportion of drop-outs and failure rates for a cohort of students. Superficially it would seem that the total product would be increased if the number of drop-outs were reduced or more graduates 'produced'. Internationally there is a wide range in drop-outs and failure rates from 9 per cent in Japan to over 55 per cent in France, Spain and Yugoslavia.

There are several difficulties involved in comparing drop-out rates of different countries. In some countries, it is both easy and inexpensive to register as a student, and many who are not serious students may register but they keep their student registration because they benefit from cheap restaurants, cheap travel, etc. As a result, French student enrolment figures (and drop-out rates) may quite easily be 20 per cent higher than those in the UK for reasons of this kind which can be written off virtually as 'statistical quirks'. In order to get better information on real student numbers it would seem worthwhile to conduct annual sample surveys to assess their number.

Secondly there are differences between countries which derive from deliberate policy and which reduce the drop-out rate to a very unreliable indicator of inefficiency/efficiency even if no statistical snags were present. A selective system like that in the UK can be made to appear more 'efficient' merely because it excludes all students who might drop-out, yet there is waste of a different kind in so doing: some who could have completed a degree and profited from it are excluded. A spurious efficiency can also be created by reducing standards so low that no one drops out.

There may also be differences among countries as far as student attitudes are concerned. A Swedish study sponsored by U68 shows that a large number of those classified as drop-outs only intended to enrol for a few courses. They were either complementing earlier education or enrolling for the pleasure of study.(1) In Japan or the UK there is much more of a social stigma attached to students who fail to get a degree than there is in Sweden.

It is not obvious that to do only part of a course is uneconomic: evidence from the US suggests that even those who complete only a year or two of college become more productive, as measured by their earnings relative to those with no higher education. Nevertheless, it remains true in all Member countries that one important objective of higher education is certification, and its role is well brought out in several rate of return studies which display a marked 'sheepskin effect'. Lasting out the course and getting a diploma to prove it produces a much bigger earnings differential than might be expected to accrue from the extra year or two of study. On the other hand even if this is evidence that further years of study have a subsequent advantage in terms of increased income, it does not necessarily imply that those who voluntarily leave the system earlier would have benefited financially in the same way had they remained.

In order to make valid international comparisons of drop-out rates with a view to increased efficiency it is necessary to take account of all these statistical and conceptual difficulties. We believe however that such studies will tend to highlight the differences in attitudes and preferences among countries and will provide few if any indications about improving the efficiency of educational systems.

7. Future developments of costs and resources: a tentative view rather than a conclusion

If we attempt, on the basis of this discussion, to draw conclusions with a view to the future needs for resources one cannot escape the fact that the unit cost component will grow at a rate close to that of the 1960's. We might perhaps hope for

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(1) G. Attehag and G. Svanfeldt, "Universitetsstudier uten examen", in Högre utbildning och arbetsmarknad, Sou 62 Utbildningsdepartmentet, Stockholm, 1971.

a reduction of 1 per cent per year in absolute terms but that is probably the maximum. Dramatic cost savings can result from increases in the student/staff ratio but it is doubtful that authorities will go far in that direction partly because of the uncertainty about the immediate and long-term consequences for the character and quality of higher education, partly because it will involve considerable changes in the relationship of research to education.

Total expenditure may slow down for a reason we have not yet discussed. A slowing down in the rate of new entrants and the subsequent impact on total enrolment, will have a considerable effect on the development of total expenditure and total costs. In the last few years there has been a reduction in the growth of enrolment in a few countries - Sweden even experienced a drop in absolute terms in 1971. These are countries however where the effects of the recent economic recession have been very significant. Many other countries have not experienced a slackening of growth. Analyses undertaken by the Secretariat give the impression that there is no tendency for growth to slow down in the long run in OECD countries, with the probable exception of the United States. (1) This conclusion is based on the assumption that the level of growth of private demand for higher education will in the future be governed essentially by the same factors as in the recent past. In most countries some of these factors can be manipulated by the authorities. Demand can be considerably increased or significantly slowed down. If the resource constraints on higher education become more severe in the future, total enrolments will have to slow down.(2)

There is some doubt in many countries as to whether the proportion of GDP (Gross Domestic Product) at the disposal of the public can expand at the same pace in the future as in the 1960's. Statements by government officials can sometimes be interpreted as implying that expenditure in the public sector should not grow faster than total resources. It is therefore interesting to analyse, on the basis of recent experience, what it would mean for the expansion of higher education if such conditions were applied to this sector. We shall assume that the growth of unit cost is reduced by 1 per cent in absolute terms as compared to the trends in the last decade. The resulting growth in unit cost can be compared with a growth of GDP as projected for the next ten years, i.e. 1970/80. The comparison is shown in Table 9.

Even with a much slower growth in real unit cost, the table shows that there is no possibility of keeping up the past growth rate in total enrolment if the resources allocated to higher education become a constant proportion of GDP. Even if all the

(1) "An Exploration of the Relationship between GNP per capita and School Enrolment in Age-Groups 15-19 and 20-24", OECD document, 1972 (mimeo.). See also Development of Higher Education 1950-1967 - Analytical Report, OECD, Paris, 1971.

(2) For the USA, the sensivity of enrolment to changes in various background variables is well documented in P. Feldman and S.A. Hoenack, "Private Demand for Higher Education in the United States", in The Economics and Finance of Higher Education in the United States, Joint Economic Committee, Congress of the United States, Washington, 1969.

Table 9

Growth in Unit Cost compared with Projected Growth of GDP from 1970-1980

	Growth of Real Unit Cost	Projected Growth of Gross Domestic Product
Belgium	9.4	4.7
Canada	8.5	5.4
Denmark	7.0	3.8
France	2.4	6.0
Fed. Rep. of Germany	0	4.6
Japan	0.5	10.0
Netherlands	6.2	4.6
Norway	3.2	4.4
Sweden	5.1	3.6
UK	3.6	3.2
USA	2.4	4.7

Source: GDP: The Growth of Output, OECD, Paris, 1970.

cost savings which have been discussed did in fact obtain the Carnegie Commission projects, for the United States, an increase in the proportion of GDP allocated to higher education from 2.5 per cent to 2.7 per cent.

This last exercise shows that if future expenditure on higher education is not increased as a proportion of the gross national product, total enrolment can hardly increase. The implications are that:

(a) the objective of satisfying potential private demand will have to be abandoned if such demand is determined by the growth of income;

(b) a result of (a) will be an increase in the inequality of access to higher education. In other words the objective of equality of educational opportunity can hardly be attained;

(c) rates of return to higher education will in the long run increase and gradually become incompatible with an efficient allocation of educated labour.

If, however, the satisfaction of private demand for higher education is an overriding goal there exist a number of alternatives which would allow a high rate of expansion in quantitative terms. Less expensive subject fields could be quickly expanded and a numerus clausus could be introduced in fields with high resource requirements. This model for expansion has already been used in many countries but the numbers of subject fields having a numerus clausus would have to be extended in the future. A cut back in research expenditure is another alternative, but this might, in the long run, lower the quality and change the character of graduate education. Student numbers could however be allowed to increase rapidly by using the Japanese model for expansion - an elitist public system with high quality and high unit costs, combined with an expanding private system with low quality and low unit costs.

8. The role of incentives

The role of incentives in higher education is important in situations where a better utilisation of resources is desired. The nature of rewards and penalties inherent in the organisational structure can shed considerable light on the present system of resource allocation within institutions of higher education and can also contribute to changes in this allocation.

We have previously referred to evidence which shows that the teaching load does not represent a major proportion of the total number of working hours of academic staff. At present we know very little about the actual 'production function' of the university, so that a statement such as: "we need to increase the teaching load as a proportion of total working hours" is little more than a statement of values. Nevertheless we may point out that certain systems of reward lead to a predominance of the research input over the teaching input. It has been recognised for a long time that most benefits for a university teacher, whether pecuniary or non-pecuniary, are tied to his research 'output'. This provides him with the incentive to emphasize research as the most important activity. A possible explanation of this phenomenon is that teaching is much more difficult to evaluate or to measure than research.

The most radical solution, if we want to change the composition of 'output' in the direction of more teaching is to pay the teacher for his research effort and then let him personally be responsible for and collect the income from teaching. As this would increase incentives to teach, one is led to the superficial conclusion that this would also increase his teaching effort. This impression may however be deceptive for he might have to devote so much effort to organising himself as a 'firm', i.e., selling research to the university and education to the students, that his combined 'output' of research and teaching could well be reduced. This is an example of the fact that in an imperfect world institutional change is costly and a change to a situation where 'the market' is substituted for direct control is not necessarily desirable if the cost of operating the market system is excessively high.

Another alternative is to use student questionnaires to obtain information on students' assessment of teaching quality. Indirectly this may have an important effect on the teaching effort of faculty members.

We discussed previously the role of new media and concluded that close co-operation between institutions is needed in order for such an innovation to reduce overall costs. In addition we need a change in the system of incentives for teachers, for it will be the university teachers themselves who must produce programmes, and as long as rewards are essentially attached to research there will be little incentive for them to do so.

9. The problem of pricing

Another source of inefficiency is the use of student time at a zero price. As far as authorities are concerned it is therefore a free good. This means that there is waste of student time, since it may be all too easily substituted for other factors for which universities are charged a price. It is true that students can, for example, opt out of crowded courses, but they are often constrained by the lack of alternatives. Such a situation can be improved by increased participation of students in those institutional activities which determine their use of time. Even though the outcome of such a concensus-based situation would fall short of the ideal situation wherein a costless price system could be used, it might nevertheless involve a considerable saving of students' time. National authorities are aware of this problem and are seeking ways of reducing study time. Some examples are the recommendations of the Carnegie Commission on Higher Education and the Royal Norwegian Commission on Higher Education.

It is very common among economists to argue that where resources are allocated without the benefit of a price mechanism there is almost certainly some wastage or inefficiency. In the incentives structure of higher education, prices play a minor role. True, there are large private university systems both in the United States and Japan which rely heavily on tuition to finance their operations, but rarely, if at all, does tuition reflect the marginal costs of different subject fields or provide any information on students' preferences. Some economists therefore argue that an explicit price system which reflects the marginal costs of instruction would lead to increased efficiency in the use of resources and provide authorities, as well as students, with more information than in the present situation. It is alleged that this will increase the influence of the users or the clients, i.e., students and their families, over university policy and could therefore lead to an organisation of higher education compatible with the preferences of consumers.

As already noted such a price system could produce the results promised above if the use of the system was costless. It would however increase efficiency in only one dimension, i.e., the utilisation of teaching resources, and might even lead to

greater inefficiency in the production of research. For if such a system led to competition among universities in attracting funds and students, the 'output' of research would be determined in a competitive market which is far from efficient. Uncertainty about the outcome of basic research and the fact that once results are available they should be provided at zero cost, makes it preferable to finance research by direct government or state support.(1) If then research and teaching are as interdependent as is sometimes argued, direct financing by government may after all be the preferred situation.

Additional difficulties are presented by the extremely difficult question of measuring the marginal costs of teaching. For not only would we have to find a device for deducting research cost from total cost, but we should also have to estimate the social cost of instruction, not the cost imputed solely to the institution as is the case, for example, when salaries are determined on an administrative basis, influenced only in the very long run by underlying supply and demand factors. It is then a major task to determine the shadow-wage of academics. This is not the whole story however, for even if it could be shown that a price system was better on efficiency grounds than a system with direct allocation of resources, this could only be shown at a given moment in time. Privately financed universities, or universities where resources are channelled through students, must devote a considerable proportion of their resources to such tasks as collecting money and advertising for themselves. Increased uncertainty about the future could reduce long range planning, compared with a publicly financed university for which a long term budget was available. In the long run therefore direct funding may be the most efficient. In fact a study undertaken for the Carnegie Commission found that by using different measures of efficiency there was no difference between public and private colleges in the State of California.(2)

These arguments have, of course, dangers of their own in that one may easily fall into the trap of defending the status quo. Periodic reviews of efficiency ought to take place and there is a growing need for data which can be meaningfully related to the concrete situation in each country. As far as possible these data should be disaggregated. If the approach of this paper highlights some fundamental questions, there is yet more profitable work to be undertaken on the level of the single institution.

Whatever the political objectives of higher education it is still important to build up a good cost accounting system with a student/teacher register attached to it. Such an information system should, as one of its main tasks, provide unit cost

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(1) For an extensive discussion of allocation of resources to research, c.f., K.J. Arrow, "Economic Welfare and the Allocation of Resources for Inventions" in The Role and Direction of Inventive Activity: Economic and Social Factors, NBER, Princeton University Press, 1962.

(2) Papers on Efficiency in Higher Education, Carnegie Commission on Higher Education, McGraw-Hill, New York, 1971.

estimates and their probable development over time within well-defined programme areas. If possible the concepts used should be internationally comparable, as a comparative international approach on the micro-level is likely to provide additional useful information on alternative methods of organisation and resource allocation.

In the past eleborate mathematical models have been developed to simulate university operations. Such models are not likely to be needed to discover large cost savings and they tend to cover up the essential political nature of decision-making. Simulation models can however be of some help in outlining feasible alternatives.

In a discussion of the problem of incentives it is natural to consider methods of financing higher education. Methods of financing have powerful impacts on the use of resources in the higher education sector, as well as other important effects.

II. THE FINANCING OF HIGHER EDUCATION INSTITUTIONS AND STUDENT MAINTENANCE

Introduction

The role of governments in the provision of educational finance has grown considerably during the last decade. There are various reasons why this has happened:

(a) It is believed that higher education provides benefits beyond those obtained by the individual. If the financing of education were left to individuals they would not take these extra benefits into account and there would consequently be an under-investment in education from the point of view of society. Through subsidies governments can provide the 'right' supply of higher education;

(b) Governments are increasingly pre-occupied, or so it would seem, with the distribution of access to higher education and not just with total demand. The present distribution of income should not be considered to be the principal determining factor in access to educational institutions. Thus there is a case either for subsidies to low income families or direct provision of places in educational institutions free of charge. This will improve access to education for low income groups as compared with a situation in which access is determined in a competitive market. It will also help to equalise access to higher education and, through the link between education and earnings, will have an equalising impact on the future distribution of earnings;

(c) The risks of investment in human capital. Contrary to other investment objects, human capital cannot be bought and sold and is therefore an especially risky investment object. The credit worthiness of a person's future possibilities are also more difficult to evaluate than physical investment

projects. Without public intervention only a rudimentary capital market would exist for human capital, providing loans at interest rates far above those for other investment projects. This has led governments to establish capital markets with low or competitive interest rates on student loans, payable over a certain period of time, thereby reducing one of the main obstacles to efficient investment in higher education.

Traditionally most institutions for higher education are centres for research, mostly basic research. The complimentarity between research and instruction, which makes it inefficient to allocate research efforts on the basis of prices, is an additional reason for public intervention in the financing of higher education institutions.

All these arguments explain why there is some provision of public finance for higher education, but they do not explain the particular mix of public and private finance in different countries. It appears that the mix of finance is determined primarily by political rather than economic considerations. For the fact that education is an investment can justify private as well as public spending on education. 'Equality of opportunity' can be given a strong or weak interpretation, and can be used as a justification for selective provision of finance, to provide special incentives for underprivileged social or racial groups, or it can be interpreted simply to mean that governments should attempt to remove the financial barriers which may prevent low income students from gaining access to higher education. Furthermore, the objectives of 'equality of opportunity' and 'equity' are not identical since the notion of equity involves consideration of the distribution of incomes and benefits of higher education in society, as well as the question of access. A system of financing which gives high subsidies to students, financed out of general taxation, can at the same time be justified on grounds of providing equal access to rich and poor students, but criticised for ignoring the 'benefit principle' of taxation, that revenue for a service should be provided by those who will primarily benefit from it, and for redistributing income in favour of those with the ability to receive higher education.

Arguments for public finance of higher education give no satisfactory answer to the question of the precise balance between public and private finance, and give no guidance as to the best means of providing public subsidies. Even if there were complete agreement about the proportion of university costs which should be financed from public funds, there would still be room for disagreement about whether the public subsidy should be paid direct to universities to cover tuition costs, or to students, to enable them to pay fees; whether the role of government should be limited to the provision of finance, or whether educational institutions should be publicly administered and controlled; whether the maintenance costs of students should be subsidised by means of scholarships or grants, special employment programmes, or low-interest guaranteed loans; whether central or local government revenue should be the main source of finance; whether certain taxes should be ear-marked for education; or

whether all public subsidies should be drawn from general taxation. All these questions have recently been the subject of debate. The fact that different countries have adopted different arrangements shows that there are many criteria for choosing between alternative methods of finance. And the reason for the specific alternatives chosen is primarily political. The aim of this paper is not therefore to present a unique method of financing but rather to contribute to the present debate by analysing the impacts of methods of financing on different objectives.

A. FINANCING OF HIGHER EDUCATION INSTITUTIONS

1. General survey

In all OECD countries a high proportion of the current expenditure of universities is financed directly, or indirectly, by government, but there are many different patterns of distribution of financial resources, and different institutional arrangements, reflecting historical and political trends. In theory, universities could be wholly public institutions, drawing all their income directly from central or state government, or wholly private ones, deriving all their income from private endowments and fees, or they could lie somewhere between these two extremes. In OECD countries one can find examples from almost the whole range of this spectrum. In Germany and Scandinavia, higher education establishments are public institutions and receive over 90 per cent of their current income directly from government funds; at the other extreme, the private universities of Japan received in 1965 almost no public finance.(1) In most European countries, higher education is provided in public institutions which charge no or very low fees, and receive grants covering about 95 per cent of their current expenditure either from the central government, as in Italy, or in France (before the administrative changes of 1970), or from state governments as in Germany or Switzerland. In Ireland, Canada and Australia, universities are on the whole private institutions, although they receive public grants for up to 75 per cent of current costs. In the United States and Japan, public and private universities exist side by side, while in the United Kingdom, universities are private, but receive over 70 per cent of their income from the central government. British colleges of education and polytechnics are public institutions, receiving part of their income from central government, and an even higher proportion from the local authorities, which are in turn financed by the central government.

A summary of the main sources of finance for higher education is shown in Table 10. This gives only a rough idea of financing patterns, since classifications vary as among countries, but the table shows the variety of methods of finance employed.

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(1) In practice only when institutions are heavily in debt and run at a deficit. In conversation Japanese authorities stated that the role of the government had changed considerably in the last years, and that the public now (1971-1972) provides 50 per cent of total expenditure in private higher education. We have not, however, at the time of publication of this study, been able to verify this change in official statistics.

Table 10

Income Sources of Higher Education in OECD Countries, around 1966

Percentage of total income

Country and year	Public		Private	
	Central government	State or local government	Fees	Endowments and other sources
Australia (1968)	40.5	34.5	15.3	9.7
Belgium (1962)	79.0	1.0	4.0	16.0
Canada (1966)	23.0	43.0	22.0	12.0
France (1968)	95.0	-	5.0	-
Germany (1965)	90.6		3.7	5.7
Ireland (1965)	65.9	0.9	28.5	4.7
Japan: (1965)				
Public	86.2	10.4	3.4	-
Private	2.0	0.2	42.0	55.4
Switzerland (1968)	42.5	48.8	3.7	5.0
United Kingdom (universities)(1967)	72.7	0.9	8.7	8.0
United States (1968-69)				
Public	14.8	40.8	11.8	32.6
Private	15.2	1.8	34.1	48.9

Sources: United Kingdom: Statistics of Education, 1968, Vol. 6, Department of Education and Science, pp. 88-89.

USA: Digest of Educational Statistics, 1971, U.S. Office of Education, Washington, p. 97.

Other countries: Data calculated by the Secretariat.

Since the purpose here is to review methods of financing institutions, research grants have been included in total expenditure. In the United Kingdom, research grants accounted for 11 per cent of university income in 1967. In the United States, in 1968-69, 11.7 per cent of current income in higher education consisted of research grants from public authorities. Not all research is project funded but such research accounts for a significant proportion of the resources used in higher education. In

the United Kingdom it has been estimated that over 40 per cent of university staff time is devoted to research, while for the University of California, for example, 32 per cent of the time was devoted to research. This contributes to the quality of teaching and some research is also a part of graduate training. Methods of financing research should not therefore be considered separately in an analysis of methods of finance, especially as different methods of financing higher education may have implications for the balance between teaching and research.

There are big differences in the proportion of university income derived from fees. In most continental European countries less than 5 per cent of the current income of higher education institutions comes from fees; in Australia, Canada and Ireland the proportion ranges from 15 to 28 per cent, while in the United States and Japan there is a marked difference between the public and the private sector, and in the latter, fees account for 40 to 60 per cent of income. Even in public institutions in the United States, fees provide more than 10 per cent of university income, whereas in Japanese public universities, fees account for only 3 per cent. However, these figures do not provide a satisfactory measure of balance between public and private finance. In many countries students receive substantial grants or loans, which partly or completely cover the cost of fees. So, although fees account for 20 to 60 per cent of the income of American institutions, student aid being what it is (approximately $2,250 million in 1967), the contribution to tuition costs by students is that much smaller. Similarly in Britain, although 8 per cent of university income came from fees in 1967-68, a very high percentage of students have their fees paid in full by local authorities.

What these figures show is not so much the balance between public and private finance, as the differences among countries in attitudes towards direct aid through institutional grants, and indirect aid through grants or loans to students. In countries such as Canada, the United States, Ireland or the United Kingdom, a greater proportion of public finance is in the form of indirect aid to students than elsewhere in Europe. A number of economists in Britain and America have suggested, in recent years, that a greater proportion of public finance for education should be channelled through aid to students, rather than through direct grants to institutions. In Britain the Robbins Committee recommended, in 1963, that there should be an increase in fees to cover 20 per cent of current expenditure, but that the majority of students should continue to receive grants from central or local government to cover fees.(1) There was no suggestion that fees should cover all tuition costs; it was simply that the Committee felt it desirable "that public finance should come through more than one channel". There are several reasons for this belief. It has for example been argued that if all public finance for higher education were in the form of grants to universities, they might be more influenced by short term fluctations in economic conditions and policy than would be the case with a variety of forms of aid. But if

(1) Report of the Robbins Committee, Higher Education, H.M.S.O., London, 1963. pp. 212-214.

other sources of finance are mainly private or heavily dependent on private decisions there is equally good reason to believe the opposite, in other words that there would be more fluctuations in conjunction with economic conditions than in the case of full government financing.

Another argument in favour of channelling finance through students has been that higher education institutions might become more 'consumer oriented'. If more resources are channelled through students, the total income of the university will be determined partly by the ability of the institution to attract students, resulting in a loss of students and income if university policy was inconsistent with student preferences. If students are more concerned with the quality of teaching than with the quality of research, teaching output would, it is alleged, rise relative to research. This conclusion clearly depends on the assumption that students really are more concerned with teaching than with research, but, more important, it is assumed that there is no excess demand for places. For if there were no excess demand for places, universities could well lose students under a system of direct government finance, and if there is excess demand for places, higher education institutions could attract students without making the slightest effort to raise teaching standards.

Those in favour of the diversification of institutions have also defended the idea of channelling more resources through students. The difficulty here is that universities may easily behave as monopolies or cartels since the consumers, students and their families, have very limited knowledge about the product. Thus, the possibility of influencing university policy may be quite limited, even if resources are channelled through students. The only effect may be some adjustment in marginal characteristics, but no change compatible with the range and diversification of student preferences. It might however be public policy to ensure that the ability to attract students does not differ between institutions, especially if regional considerations are important and it is possible that diversification is necessary if we want to meet student preferences in a situation which is no longer catering for an elite but is rapidly becoming a mass sector. Channelling grants through students is an incentive for achieving such a diversification.

The more extreme version of this argument involves proposals for full cost fees and the channelling of all public finance through grants to students. The previous arguments questioning the merits of such an approach compared to direct public financing applies *a fortiori* here. This proposal is, in some respects, allied to the proposals by Friedman, West and others, for a 'voucher' system to finance primary and secondary education, and is open to the same objection namely that it could encourage the development of socially selective and segregated institutions.(1)

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(1) M. Friedman, *Capitalism and Freedom*, Chicago, 1962; E.G. West, *Education and the State*, Institute of Economic Affairs, London, 1965. The literature on this issue is discussed in M. Blaug, *An Introduction to the Economics of Education*, Allen Lane, The Penguin Press, 1970, pp. 307-316.

Ultimately, disagreements on this question reflect different attitudes towards the often conflicting objectives of social cohesion, or equality of opportunity, and consumer sovereignty and individual choice.

In higher education the problem is increased by the wide differences that exist between unit costs in different institutions or fields of study. Table 11 shows average cost per student in different subjects or types of university in France, Japan, the United Kingdom and the United States in 1966 and 1968. Average costs vary considerably, according to the institution or subject studied, yet in many cases fees, if charged, do not reflect these differences at all. In the United Kingdom, for example, average fees for students of British origin are about £80, and there is no variation according to subject. The only distinction is between British students, whose fees average £80 a year, and foreigners who pay about £250.

The fact that there are such wide differences in costs per student in different institutions gives rise to the fear that if universities charged full-cost fees, and even if national governments maintained high levels of student aid, access to universities might become even more unequal with poorer students choosing low-fee institutions or courses. For example, if levels of student aid were fixed by reference to average costs or fees, there would be an obvious disincentive for poorer students to choose high-cost courses or institutions. Similarly, if student aid were partly in the form of loans and full-cost fees were charged, poorer students might again be reluctant to enter the most expensive courses. There is some evidence from the United States, where there is a wide range of institutions charging high and low fees, that there is a relationship between the family income of a student and choice of institution. Table 12 shows this relationship. If the least expensive and most expensive colleges are compared, we find that 37 per cent of the students from the lowest income category were attending the cheapest colleges, compared with 19 per cent of students from the top income group; on the other hand only 13 per cent of the lowest income students were in the most expensive colleges, compared with 34 per cent of students in the highest income group. The difference is most marked between students from the $3,000 to $4,999 income group, and those with a family income of $15,000 or above; of the former 72 per cent were attending a college with fees less than $500, compared with only 46 per cent of the top income group. Thus there is a clear relationship between family income and choice of college, even though student aid, particularly to those from the lowest income category, enables some of even the poorest students to pay high fees.

Table 12 also shows that family income of students is linked with choice of public or private institution. In the United States private universities, which take only 30 per cent of the total student population, tend to have higher fees, higher unit costs, and higher staff-student ratios than public institutions. Since these institutions receive over 90 per cent of their income (excluding grants for research) from fees, endowments or private gifts, compared with only 27 per cent in the case of public institutions, this might be taken as evidence that a preponderance of public finance is linked with inferior quality in higher education, but the truth is not so simple. In Japan, for example, where there is also a public and a private sector, it is the

Table 11

Cost per Student by Type of Institution and Field of Study in U.S. Dollars

Australia (1970)	
Medicine	3,090
Engineering	2,560
Science	1,900
Law	940
Average, all faculties	1,725
France (1968)	
Law and economics	327
Humanities and social science	381
Medicine	649
Science	767
Average, all subjects	518
Japan (1968)	
Public universities	1,700
Private universities	425
United Kingdom (1966-67)	
Universities:	
Arts and social studies	2,176
Science	3,385
Technology	3,850
Medicine	4,808
All subjects	3,013
Colleges of education	1,305
Further education	2,447
United States (1967-68)	
Major research universities:	
Public	4,000
Private	9,964
Other universities:	
Public	2,573
Private	3,902
Comprehensive colleges:	
Public	1,467
Liberal arts colleges:	
"Higher category"	
Private	3,675
"Lower category"	
Private	2,188
Two-year colleges:	
Public	877

Sources: Australia: Bruce Williams, "The Escalating Costs of Universities", The Australian University, Vol. 10, No. 2, September 1972.

United Kingdom: G. Brosan et al., Patterns and Policies in Higher Education, Penguin Books, 1971, p. 37. The figures for the United Kingdom include the value of imputed rent on buildings.

United States, France, Japan: Data calculated by the Secretariat.

Table 12

Relationship between Family Income and Choice of College (U.S.A.)

Characteristics of college \ Annual family income	Percentage of income group attending each type of institution						Total
	Less than $3,000	$3,000 $4,999	$5,000 $7,499	$7,500 $9,999	$10,000 $14,999	$15,000 or over	
Level of fees:							
Under $250	37	35	31	28	25	19	27
$250 to $499	23	37	30	38	31	27	31
$500 to $999	18	16	17	13	16	15	15
$1,000 or over	13	9	15	17	24	34	21
Not reported	11	4	7	5	4	4	5
Total		100	100	100	100	100	100
Type of control:							
Public	57	69	60	66	56	46	58
Private	33	27	34	30	40	50	37
Not reported	11	4	7	5	4	4	5
Total	100	100	100	100	100	100	100

Source: R. Bolton, "The Economics and Financing of Higher Education: An Overview" in a Compendium of Papers to the Joint Economic Committee of Congress, The Economics and Financing of Higher Education, Government Printing Office, Washington, D.C. 1969, p. 64.

public universities which cater for a small 'elite' body of students, and have much higher unit costs and staff-student ratios. In so far as expenditure per student and staff-student ratios are measures of quality, it appears that high quality is associated with private finance in the United States and with public finance in Japan. This is illustrated clearly in Table 13.

This is not decisive evidence however on the distributional consequences of full-cost fees, or any price system. In fact we would expect a strong relationship between family income and student choice of faculty and institution in a situation with only a rudimentary support policy and a very restricted capital market for higher education. There is no evidence in these figures that the situation they describe would persist if an efficient capital market with sufficient hedging against risk existed. An efficient capital market is a market where a student can borrow the full cost of his studies at competitive interest rates. Because of the large risks involved in providing loans to finance investments in human capital, such capital markets are

Table 13

Comparison of Public and Private Sectors of Higher Education in the United States and Japan

1968

Characteristics of sector	United States		Japan	
	Public	Private	Public	Private
% of total students	70.0	30.0	28.0	72.0
% of income (excluding research grants) from:				
Fees and endowments, etc.	27.7	91.8	3.4	97.8
Government sources	72.3	8.2	96.6	2.2
Average cost per student (in US $)	2,182	3,421	1,700	425
Number of students per full-time teacher	16.1	11.0	9.0	26.3
Average annual salary per teacher as % of GNP per capita	280	320	175	120
Average fees	278	1,313	52	267
Other private expenditure per student (in US $)	832	1,017	111	136

Source: Data calculated by the Secretariat (1971).

likely to be organised or guaranteed by the public. In the former case a public bank for the financing of student maintenance and cost of tuition is set up while in the latter students borrow from private banks, the loans being guaranteed by public authorities. In such a market earnings will be positively related to the cost of education, so that on the average any student is able to finance further education out of future income and still expect a reasonable rate of return. The insurance element ensures that the repayment load is a function of future income, the less one earns the less one repays.

This is not a plea for full cost fees but rather an emphasis of the point that the distributional consequences of any price policy in higher education are closely related to the way in which student support policy is organised. This is also true in the more extreme case of full private financing, through tuition, of institutions

of higher education. Such a scheme may be inefficient and impractical for reasons which are discussed later, but is not necessarily more socially biased than any other, given that access to an efficient capital market exists. Yet the main argument against any proposal of this sort has been based on the negative effects on equality of educational opportunity. Implicit in this argument has been the assumption that present support policies towards students will remain unchanged. In that case it is not difficult to argue that full private financing would run counter to the principle of equality of access to higher education. The answer is much less obvious if full private financing is combined with an efficient capital market for higher education.

There is one argument in favour of the latter scheme, on distributional grounds. It does satisfy the benefit principle of taxation, i.e., that those who benefit shall pay. Full private financing based on a capital market involves redistribution of income over time but not among income groups. It is therefore a more equitable form of finance than public finance of higher education, but this is not of course in any sense the final answer to the question on how to finance higher education.

2. The Yugoslav model for financing institutions

A rather particular scheme for the financing of education, higher education included, has been initiated in Yugoslavia. Financing is based directly on the income of households and enterprises, via an educational tax. It is unclear what rules govern the decisions but if the outcome, i.e., a certain amount of resources for higher education, is based on simple majority voting this result will be identical to the one desired by the median voter. If this interpretation is correct, this system for providing a public good is related to full private financing in a competitive market, but is more rigid in the sense that only the preference of the median voter counts. A detailed analysis of all the consequences of such a proposal would be out of place here, but we may note that the case has been extensively analysed by Pauly and Stubblebine.(1) They show that if resources to education are determined by the median voter while in fact there is a wide distribution of preferences, mixed private-public financing will generate more resources for education than either full public financing - the present case - or complete private financing. Official statements give the impression (2) that 'willingness to pay' constitutes the basis for revenues in education. If majority voting is used, however, it is clear from the above analysis that more resources would be forthcoming under a mixed private-public financing system.

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(1) M.V. Pauly, "Mixed Public and Private Financing of Education: Efficiency and Feasibility", American Economic Review, March 1967; and W.C. Stubblebine, "Institutional Elements in the Financing of Education", Southern Economic Journal, 1965.

(2) See for example, Božidar Pasarić, "Participation in Educational Planning in Yugoslavia", Participatory Planning for Education, OECD, Paris, (forthcoming).

3. The special problem of numerus clausus (1)

Most countries have numerus clausus in one form or another. The essence of the problem is that there is excess demand for higher education either in general or in specific fields. We shall analyse the problems in terms of excess demand in certain fields. These fields, which may be universities, faculties or even departments, are usually characterised by a very high resource input per student, examples are medical faculties, some technology fields, etc.

Numerus clausus is a rationing scheme and is usually justified by reference to the large unit costs in these special fields. The criteria for rationing is partly grades at the end of secondary schooling or selective exams early in the study period. It is well-known that these selection criteria are only feebly related to later success in the profession or even to results during the period of studies. In addition, such criteria create additional social bias in that the distribution of students by social background is even more selective in fields where admission is based on numerus clausus than in other fields. Another negative effect is that in so far as grades or achievement rates reflect talent, admission policy implies a distribution of talent into subject fields which may be incompatible with overall social objectives. A further negative aspect is the impact on income distribution. Since access to these subject fields is rationed and supply of graduates from them relatively limited, earnings will in general be higher for graduates from these fields than for the average graduate. This, combined with the fact that costs in these studies are, as we have already noted, often many times higher than average unit cost, implies that public finance of universities is indirectly subsiding people in very high income brackets.

Numerus clausus also introduced inefficiencies in the educational system as a whole. As the intake is based on grades, students who can afford it may add one year to their secondary schooling in order to improve grades. To counteract socially selective admission procedures, authorities in some countries have introduced extra credit for courses taken in other fields. This leads to a costly roundabout education for those who can afford it with effects on the distribution of students by social class which are likely to be the opposite of those desired.

The following three alternatives to the present system will be discussed here: (a) a quota system; (b) a lottery system; and (c) introduction of explicit prices.

(a) A quota system means that students from well-defined social groups have a right to a proportion of places in one of the numerus clausus faculties which would normally bear some relation to their proportion of qualified applicants. Such a rule can be sufficiently flexible

(1) For an extensive discussion of all aspects of this problem, see "Admission Policies in Post-Secondary Education", Study II of the present publication.

to admit a higher proportion of students from the lower income bracket into the numerus clausus faculties than their proportion among the applicants would in fact allow.

(b) The lottery system provides all applicants with the same probability of entry into any of the numerus clausus faculties. The quota and lottery systems will lead to a more equitable distribution of students in numerus clausus faculties than at present, and in fact the lottery system would lead to a more equitable distribution of applicants by social class. These two methods should also remove inefficiencies created by numerus clausus in other parts of the educational system.

(c) An explicit price system is meant to be a price on the right to attend a numerus clausus faculty. Combined with full access to loans to cover extra costs and, if needed, subsidies to low income students, it could lead to a demand for places equal to the supply of places with a better social composition of students than in the case of numerus clausus. Inefficiencies in other parts of the system would be removed. In addition to receiving higher monetary returns, graduates from some of the high cost faculties enjoy high social prestige. It might therefore happen that the extra price necessary to bring demand into line with supply would have to be set so high as to wipe out any monetary return for the average student. To avoid social bias, as a consequence of this, the method could be combined with a lottery or quota method. This system would then be more equitable as at least part of the extra cost would be covered by the student himself and not the taxpayer. It also presents one of the few instances where changing the methods of financing increases the total amount of resources available for higher education. When students have access to a loan market this effect is not important in the short term and would only be felt as graduates started to repay loans on extra costs. An important deficiency of a system like (c) compared with (a) or (b) may be the costs of administering it and the need for a large research programme to determine student reaction to different price schemes.

B. FINANCING STUDENT MAINTENANCE

Since universities in many OECD countries receive full public subsidies to cover tuition, and consequently charge no fees, students do not face any direct costs, but their education is not 'free'. Students must finance their living expenses, and by choosing to continue education rather than work, they sacrifice earnings. Unless they receive maintenance grants or loans equal in value to earnings foregone, they or their families face indirect costs, in the form of reduced consumption. Because this may discourage some students from undertaking higher education, particularly those from

low income families, most governments now provide student grants or loans, or special programmes for part-time work. Aid is usually dependent on ability or financial need, but there are considerable variations in policy. It is often difficult to find a precise statement of objectives, which makes it difficult to evaluate the effectiveness of student aid policy, but seven main objectives have been frequently mentioned in public policy statements:

(a) stimulating demand for education in general;
(b) stimulating demand for education from particular groups;
(c) increasing the effective utilisation of students' time;
(d) promoting student independence;
(e) improving the conditions of graduates;
(f) overcoming failures of the private capital market;
(g) encouraging graduates to enter particular occupations.

All these objectives influence student aid policy in OECD countries. In the United States, the main objectives are to stimulate demand for education, particularly from low-income students, to remove imperfections in the capital market, by overcoming the reluctance of private banks to provide capital for what is a particularly risky investment, and to encourage graduates to enter the teaching profession. Thus grants and low-interest loans are available for needy students; government guarantees are given for other students to obtain loans from private banks, and loan repayments are cancelled if graduates become teachers for a certain number of years. In Sweden, the goal of equality of opportunity is paramount, but promoting student independence is also important, which is why student aid is not made dependent on the income of the students' parents. In several countries students are given guaranteed loans which may be repaid over a long period (15 to 20 years), starting one or two years after graduation. There have been a number of proposals to make loan repayments contingent upon income. This reflects the desire to ease the burden of debt for young graduates who might otherwise face hardship on repaying a loan. Thus student aid policy is intended to satisfy a number of different objectives, which is why such a variety of different forms exist in OECD countries. These include:

(a) scholarships or grants to students, e.g., the United Kingdom;
(b) repayable loans at low rates of interest, e.g., Canada, Denmark, Norway, the United States (National Defense Student Loan Program);
(c) interest subsidies and guarantees for loans from private banks, e.g., Finland and the United States (Guaranteed Loan Program);
(d) special employment opportunities for students, e.g., the United States (College-Work-Study-Program);
(e) income tax relief for students' parents whilst the student is in higher education, for example, in the United Kingdom.

The type of aid given to students, and the proportion of students receiving financial aid from public funds in various OECD countries is shown in Table 14.

Table 14

Financial Aid to Students in OECD Countries (circa 1968)

Country	% of students receiving aid	Form of aid
Australia	35	Grants
	35	"Pre-salary payment" committing student to particular employment
Canada	15	Grants
	?	Loans, at 5 - 8 per cent
Denmark	50	50 per cent grant, 50 per cent interest-free loan
Finland	50-60	Small number of scholarships; plus government guarantee and interest subsidy for loans from commerical banks at 3 per cent
France	25	Grants
Germany	20-30	Grant plus loan
Italy	10-15	Grants
Japan	12-20	Loans
Netherlands	30-40	Grants plus interest-free loans
Norway	70	Minimum grant ($240) plus loans at 4¾ per cent
Sweden	72	Minimum grant ($348) plus loans repayable in terms of constant money value
United Kingdom	95	Grants
United States	?	Grants, employment programmes and loans

Table 14 shows that the proportion of students receiving aid ranges from 10 per cent to 95 per cent. In some cases aid is intended only to cover direct costs, such as fees, books or travel to and from university, but elsewhere it is intended to cover a large proportion of students' maintenance expenses. For example, in 1967, the average student grant was £230 in Denmark and Norway, £270 in the United Kingdom and over £600 in Sweden.

In the United States it was estimated that in 1967 total student expenditure on fees, books, board and lodging, or living expenses at home, equalled about $9 billion, and total student aid, in the form of grants, special employment programmes and loans, equalled $2.2 billion. Earnings foregone by students were estimated to be at least $14 billion. In the United Kingdom, 1969 earnings foregone by students averaged £755, of which £170 would have been paid in income tax, etc., leaving net earnings foregone of £580. The average maintenance award for students was £265, and in addition parents received income tax relief averaging £70, so that the total contribution from public funds amounted to over 50 per cent of net earnings foregone compared with 14 per cent in the United States.(1)

In Scandinavian countries grants and loans from government funds account for 20 to 70 per cent of students' average expenditure. In Sweden in 1967 average expenditure per student varied from £850 for unmarried students living at home to £1,050 a year for married students. State aid, in the form of grants and loans, covered 70 per cent of this, in the case of unmarried students, and 56 per cent in the case of married students, the balance coming from part-time employment and parental contributions.(2) In Canada in 1965/66 students spent $190 on books, travel, etc., $600 on fees, and $756 on halls of residence. This total of $1,546 compares with $1,970 which was the estimate for net earnings foregone (after tax) in the same year.(3)

These rough calculations show that the financial contribution made by students or their families towards the cost of higher education, whether in terms of actual expenditure or reduced consumption, may be higher than official financial statistics suggest, if they take account only of tuition costs and fees. They also explain why governments are beginning to accept that 'equality of opportunity' means more than simply enabling students to cover the direct costs of education, and are therefore providing financial assistance to meet living expenses. Whether this should be in the form of grants or loans is a matter of controversy. In the United Kingdom, loans have been criticised on the grounds that they would discourage working class students and women from entering universities, would increase wastage rates by encouraging students to work part-time to reduce their debt, and would be expensive and difficult to administer.

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(1) The sources for these calculations are: J. Kirkpatrick, A Study of Federal Student Loan Programs, Government Printing Office (Senate Committee Print 1969), Washington D.C.; Department of Education and Science, Output Budgeting for the Department of Education and Science, H.M.S.O., London, 1970.

(2) M. Woodhall, Student Loans: A Review of Experience in Scandinavia and Elsewhere, Harrap, London, 1970, pp. 112-114.

(3) G. Cook and D. Stager, Student Financial Assistance Programs with Special Reference to Ontario, Institute for the Quantitative Analysis of Economic Policy, Toronto, 1969, Tables 1.6 and 1.7.

There is, on the other hand, no evidence that loans discourage attendance of working class students as in, for example, Scandinavia, where loan schemes are practised on a large scale. The social composition of the student body is more biased than that of secondary school students but this is true of all countries, whether they have loan schemes or not. Women do not seem to be discouraged by loans; on the contrary, in 1969/70 the proportion of female students in universities was much the same in Norway as in Great Britain - about 27 per cent whereas it was about 36 per cent in Sweden. The extent to which students work part-time is not only a question of finance but also a question of values. In Scandinavia and the United States the organisation of studies makes part-time work possible and this may be an important reason why students undertake part-time work. Furthermore, students are older in Scandinavia than the United Kingdom and many are married, a factor which may also explain the stronger tendency to take part-time work. On the other hand loan schemes can be a very powerful instrument in contributing to a more effective use of student time. This can be done by making the right to obtain loans a function of total study time. Administration costs seem to be low, about 1 or 2 per cent of total annual loans.

The terms of loans and their repayment vary considerably among countries at present. Almost all the government-sponsored loan schemes provide an interest subsidy; for example, loans in Denmark are interest-free, in Norway interest is charged at 4¾ per cent. In Sweden graduates do not pay interest on loans, but repay the debt in terms of money of constant purchasing power, since the amount of repayment is automatically linked to the cost of living index. These interest subsidies are very significant, since private banks charge as much as 9 or 10 per cent. The length of time allowed for repayment varies from ten years in the United States to over 20 years in Sweden, where the requirement is that graduates must complete repayment by the age of 50. In most cases, repayments are excused in the case of severe illness, and postponed in the event of unemployment or serious financial difficulties. In Sweden there is an 'insurance' element built into the system, which means that graduates whose incomes fall below a stated minimum in any year are automatically excused repayment.

There are other ways of arranging such an insurance policy. One could, for example, as proposed in Hartman's book,(1) require that a cohort of students repay what the cohort borrowed. Graduates earning less than the average would repay less than they borrowed while graduates earning more would repay more than they borrowed. A priori the possibility of hedging against risk may be an important factor in determining the social composition of the student body. The higher the level of non-human capital to human capital, i.e., the higher the family income, the more willing the student is to undertake a risky investment like investment in his own education. Without any insurance, students from low income families may be discouraged from entering higher education, even though they have access to loans.

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(1) R. Hartman, Credit for College, McGraw-Hill, New York, 1971.

In the United States, there are a number of proposals and experiments under way to test the feasibility of income-contingent loans. The experience of countries operating loan schemes is sufficient to allow some evaluation of the effects of loans; as we have shown, for example, there is no evidence that loans necessarily increase wastage, or discourage women.

The real cause of disagreement between advocates and opponents of loans concerns the implications of student loans for equity and equality of opportunity. Since one of the objectives of most student aid policies is to encourage participation of students from low income families, this is a crucial question. Will students from poor homes be discouraged from entering higher education by the prospect of a long-term debt, or will a loan scheme encourage them to enter, by removing financial barriers? Clearly the answer depends on what alternatives are available and what the terms of the loan are. In the United States, the Federal Government operates two loan schemes; one is the National Defense Student Loan Program, which offers low interest loans, and is intended particularly for low income students, and the other is the Guaranteed Loan Program, which provides government guarantees for commerical loans, and a much smaller amount of interest subsidy. The purpose of the latter programme is to extend the capital market for education to students from middle income families. Accordingly, there is a considerable difference between the two schemes as to their appeal and availability, and this is reflected in the characteristics of borrowers. Fifty per cent of N.D.S.L. borrowers came from families with incomes below $6,000, compared with only 17 per cent of the G.L.P. borrowers. The contrast is greater still if we look at the proportion of students from each income category who borrow under the two schemes. In the case of the lowest income category 67 per cent of all students have loans but only about 10 per cent of students in the highest income category. These figures are shown in Table 15. This demonstrates that loan schemes can be designed to appeal to poor students, and might suggest that U.S. student loans are successful in promoting greater equality of opportunity. On the other hand, Hartman's recent study of these loan programmes for the Carnegie Commission concludes that they have made only a modest contribution to equalising enrolment rates, since very wide disparities still exist between income groups. Only about 30 per cent of the interest subsidies in these programmes actually go to students from families with incomes below $6,000.(1)

Experience shows that inequalities of participation among different social classes have many different causes, including selection methods in secondary education, so that student aid policy, whether based on grants or loans, can make only a limited contribution to greater equality of opportunity. Furthermore, the most generous policy of financial aid to students would not, by itself, ensure equality of opportunity, because the proportion of pupils leaving secondary school without attaining university entrance requirements is much higher among working class than among middle class pupils. Several surveys have shown that social class participation in university education is

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(1) R. Hartman, Credit for College, op. cit.

Table 15

Students borrowing under U.S. Federal Government Loan Schemes, by Family Income

Gross family income ($)	Percentage of borrowers in each income group		All borrowers as percentage of students in own income class
	N.D.S.L.(1)	G.L.P.(2)	
0 - 2,999	22.4	8.8	62.8
3,000 - 5,999	27.8	8.8	24.8
6,000 - 7,499	16.0	10.1	18.9
7,500 - 8,999	13.1	10.1	16.6
9,000 - 11,999	13.8	22.1	17.6
12,000 - 14,999	5.0	19.9	15.1
15,000 and over	2.0	20.3	9.8
Total	100.0	100.0	18.4

(1) National Defense Student Loan Program.

(2) Guaranteed Loan Program.

Source: R. Hartman, op.cit., p. 48.

not very unequal for students who have graduated from secondary school. Large inequalities among the social classes attending university are principally caused by the selective process which has taken place earlier in the schooling process. Most of the reduction in disparities in higher education can therefore probably be explained by an increased democratisation of secondary education.

It has been argued that efforts to equalise educational opportunity by giving grants to students in higher education are misguided, since it is at the transition point from primary schooling to secondary schooling that the financial barriers to participation in higher education begin, when pupils or their parents must decide whether to bear the indirect costs of earnings foregone of secondary schooling in order to obtain university entrance requirements. In most European countries this constitutes an important part of the income of a working class family, and there is therefore a case for grants to low income families to encourage them to obtain secondary education for their children. This grant must be available when selection takes place, i.e., at the transition from primary to secondary schooling. Otherwise it will primarily have the character of an income transfer to higher than average income

brackets without any significant influence on the social class distribution in secondary and higher education. In Europe most grants seem to be concentrated in upper secondary and higher education. Thus it is likely that these have a relatively limited effect on the demand for more education in the lower income groups, and are, in fact, mainly a redistribution of income from the average taxpayers to people with higher than average incomes.

Although there is very little information available, one would expect that grants are a priori slightly more effective on equality grounds than most loan systems. The point is, however, that this effectiveness is bound to be lower at the university level than in other parts of the school system. With strict numerus clausus, moreover, any positive effect grants may have on equality of access will be largely neutralized. Smaller grants in lower level secondary, combined with loans on the university level are likely to be more effective on equality and equity grounds than a simple grant system.(1) A possible exception is the United States where secondary education is almost universal and where the selection process has been transferred to higher education. In this case subsidies or grants are likely to have a considerable impact on equality of opportunity.

The choice between grants or loans to students therefore raises the question of equity. Higher education is a profitable form of investment for the individual, and because of government subsidies private rates of return are higher than social rates in all the countries for which estimates are available.(2) This means that the average taxpayer is subsidising those who will, in the future, have higher than average incomes as a result of their education. It also means that the student in higher education is often treated more favourably than those investing in other forms of human capital, who receive smaller subsidies from public funds. The argument for providing at least part of the finance in the form of a repayable loan is that this does not involve so great a redistribution of income as a system based solely on grants. Loans to students involve redistribution of costs and benefits over time, but grants involve redistribution among income groups. Although one objective of financial aid for education may be to affect the long-term distribution of income, the immediate effects may actually be to redistribute income in favour of graduates with high incomes. Hanson and Weisbrod, in a study of the distribution of costs and benefits of education in California conclude that, on the whole, the effect of subsidising higher education is to promote greater rather than less inequality among people of different social and economic backgrounds.(3)

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(1) M. Blaug, An Introduction to the Economics of Education, op.cit., pp. 293-298.

(2) See G. Psacharopoulos, "Rates of Return to Investment in Education around the World", Comparative Education Review, February 1972.

(3) W.L. Hansen and B.A. Weisbrod, Benefits, Costs and Finance of Public Higher Education, Markham, Chicago, 1969.

A more radical proposal than either loans or grants for financing student support, which has been discussed in some countries, is the introduction of a student salary system. The proponents argue that students should be paid a salary equivalent to that which they might obtain in the labour market. Such a system, combined with full public financing of universities, would make university studies virtually free, create an enormous demand for university places in the long run and increase the monetary benefits of higher education very considerably. To a much larger extent than any other financing scheme in use or proposed, this arrangement would involve large transfers from the average taxpayers to high income groups. At the same time the effect on equality of opportunity would probably be negligible as very strict numerus clausus schemes would be likely to be used.

The final choice between loans and grants may depend, in some cases, on the possibility of making a loan system self-financing, and so reducing the claim on public funds, even though it will not diminish the real costs of education in any way. One thing is clear, student loans do not offer any short-term saving of public funds, since the repayment period allowed is long, and if the government provides any form of interest subsidy, a loan scheme will still require significant contributions from public funds. Calculations in Denmark, for example, show that when fully developed, a loan scheme which involves some interest subsidy, and a repayment period of ten years, would generate from 20 to 70 per cent of its expenditure from repayments, according to the level of interest subsidy, but such a scheme could never be fully self-financing.(1)

Other studies seem to support this conclusion. One could for example calculate the extra income tax needed to make such a loan scheme self-sufficient. Hartman found that a proposed loan scheme based on the Educational Opportunity Bank proposal in the United States would require extra taxes varying from 11 to 29 per cent of total income. This conclusion is consistent with an analysis for Britain where the equivalent range was estimated to be 10 to 25 per cent. Extra taxes of this magnitude, on top of ordinary income taxes, are doubtless insupportable.

All this is to say that loan schemes hardly offer large-scale savings of public funds. The extent of any saving will depend on the terms of the loan. There is a tendency in Scandinavia for loans to be given to students regardless of their parents' income, whereas grants are often means-tested, as in Britain. This suggests that publicly financed loans to students may increase their financial independence, and may enable them to increase their level of consumption, so that actual public expenditure on student aid may be higher than under a system of grants. In Sweden, for example, where the level of student aid is linked with the cost-of-living index, the average level of aid to students in 1967 was about £615, whereas in Britain, where students received means-tested grants, the maximum grant for under-graduates in 1967 was £360.

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(1) M. Woodhall, Student Loans: A Review of Experience in Scandinavia and Elsewhere, op.cit., p. 125.

As a conclusion to this section of the paper we shall consider in some detail, a controversial question which may clarify some important issues in the financing of higher education. The question is this: do we need to subsidise higher education if students have access to a capital market with an insurance element guarding against the most important risk factors? In a capital market with hedging for risk the student is relieved of any dependence on current economic conditions in financing higher education. If he then does not enter, this implies that he is not willing to pay the costs of higher education even if assured of a higher future income. Disregarding allocational reasons for subsidies, for the moment, subsidies in this case would mean that different preferences for present versus future income are not considered to be constraints on equality of access to higher education.

In the introduction to this section we mentioned external effects of education as an important reason why governments or society would be willing to subsidise higher education. In that case the average taxpayer would receive some of the benefits of the investment in higher education and it would be efficient for governments to subsidise higher education. The trouble is that it has never been shown that external effects of education, apart from research, are important in higher education. It is also taken for granted that these effects are all positive - negative elements are rarely mentioned. The reasons most frequently mentioned to justify public subsidies to higher education, such as rapid economic growth, or a satisfactory supply of higher skilled personnel, are not external effects, and if these are sufficient arguments for subsidies to higher education then they would also be sufficient to justify subsidies to any investment in physical capital.

There are, however, at least two considerations which justify some kind of public intervention in higher education, through subsidies or by direct public ownership. The first is the consequences of the alleged complimentarity between education and research on financing. We have argued previously that it is efficient to finance research either via subsidies or via public ownership of research institutions. Therefore if education and research are combined in the same institutions, subsidies at least are called for. But even if one believes that this complimentarity is present, there is a case for distinguishing between undergraduate and graduate education. Undergraduate teaching is hardly research based and the argument for government intervention at this level is therefore weak. It is difficult however to distinguish between the two levels, at least in Europe. Most institutions provide both graduate and undergraduate education and the same teachers instruct at both levels. It may therefore be impractical or at least very costly to use a different system of finance for undergraduate and graduate education. The differentiation in the system of financing is likely to break up the present institutional structure and this may not be desirable.

The second issue is the question of control. Private financing of higher education may conflict with long-term policy objectives. Institutions of higher education have a longer life than length of studies and ought not be unduly influenced by transitory shifts in preferences of students and their families. To avoid this, some kind of public control is necessary, of which public ownership or complete public

financing may be the most efficient one. Private financing may also conflict with the independence of institutions of higher education, an independence which is necessary if we want these institutions to be centres of critical and creative thinking in society. It may be, dependent on historical and cultural traditions, that such independence is best safe-guarded if these institutions are public.

To sum up: in the case of access to an efficient capital market and when benefits are largely private, full private financing of higher education seems to be a valid alternative to present arrangements for non-research institutions. If, for various reasons, these conditions are not fulfilled, there are very strong arguments on equality and efficiency grounds for some kind of public intervention. However, private financing may remain more equitable than public financing, if total subsidies are larger than would be justified on the basis of external benefits.

Financing of Institutions and Student Maintenance: Concluding Remarks

1. Financing, growth and planning of higher education

There are very few unconditional statements to be made about the future development of higher education. An objective shared by most countries is to ensure that supply of places in higher education be equal to the demand for these places, i.e., satisfaction of private aggregate demand for higher education. In isolation such an objective is meaningless unless the constraints on private demand are clearly specified. By changing support conditions public authorities can influence demand very significantly. If subsidies were reduced satisfaction of private aggregate demand would require less places than if subsidies were increased. Thus, an objective like the satisfaction of private demand for higher education provides very little information about the priority given to this objective or the rate at which higher education will be allowed to expand. But if demand for higher education is allowed to expand in the future under the conditions which have recently prevailed, a reasonable forecast for the European countries would be an extension of the trend experienced during the 1960's. If governments extend accessibility to a capital market for higher education as well as providing substantial subsidies and meet the resulting demand, the growth of enrolment may become even higher than in the 1960's.

It may well be that government public expenditure may grow less over the next decade, than in the 1960's. If this also applies to total resources available for higher education, there will be a constant excess demand for higher education. A strict numerus clausus policy will then follow.

As secondary education becomes increasingly democratised and the right to enter post-secondary institutions is extended, the social selection process will move up into the field of higher education. The case for subsidies and grants may then become stronger than it is today. However an extensive numerus clausus policy may to some extent neutralize any policy moves in the direction of greater democratisation of higher

education. Increased subsidies and grants will then have a negligible effect on the social composition of the student body and mainly become a mechanism for transferring resources from the average taxpayer to higher income groups.

It is likely that tuition and explicit prices will play an increasingly important role in the future structure of higher education. The reason is not so much the intrinsic value of a price system but rather the need to limit the negative effects of a constantly increasing overall level of taxation. To slow down these increases in the overall level of taxation more private financing may be necessary and higher education may become a relevant candidate for such a policy. To what extent demand will actually be satisfied depends on the place of higher education within the overall set of government priorities. What the development on the supply side will be cannot therefore be predicted. The amount of public funds allocated to higher education will be affected by influences other than educational ones, and these at the level of total budget theoretically available for higher education. These influences include both those determining the level of the total budget and those which determine the share higher education is likely to get.

An important consideration influencing the volume of resources available for higher education is the relationship between higher education and the labour market. Some writers have argued that this relationship should form the basis of planning for higher education and that the development of higher education be determined by some notion of the need for highly educated manpower rather than the private demand for places in higher education. During the last decade much research has been devoted to increasing the understanding of the allocation mechanism in the market for educated labour. Underlying this research has been the search for principles of planning higher education on the basis of labour market considerations.

At present there are two different views of the world which form the rationale for applying labour market criteria to the development of higher education: (a) the so-called manpower planning approach, (b) the cost benefit approach. The former is based on the idea that the optimal distribution of manpower in the economy by educational category is determined by a set of fixed coefficients. These coefficients are in their turn determined by an empirical relationship between labour productivity in various industries and distribution of the labour forces by educational background. These coefficients can also be determined by direct political considerations such as, for example, the desired number of doctors per 1,000 inhabitants. The cost benefit approach on the other hand argues that the optimal distribution of manpower by educational background is a question of costs and earnings, and that when these two variables change so does the optimal distribution of manpower. The strategic variable in this approach is the social rate of return for various educational backgrounds based on present total costs by education and present gross earnings by age and education. For this approach to be a useful guide to policy-makers, graduates of different educational backgrounds must be able to replace each other easily in the labour market. Recent research has shown that this seems indeed to be the case and has therefore weakened the basis for the manpower approach. Another essential assumption is that labour earnings reflect

the marginal productivity of labour. As a rough generalisation this is likely to be true and social rates of return would therefore seem to be an important piece of information when considering future development of higher education.

Some writers in the field have stressed the complementarity between the manpower approach, the cost benefit approach, and a policy based on satisfying private demand for higher education. There are important sectors where the assumptions of the manpower approach are indeed realistic in the public sector for example, and even though different types of educated labour are easily substituted for each other there are limits to the extent of this substitution. Manpower consequences of the present and probable future demand for higher education should therefore be considered. This is important for another reason. In that the cost benefit approach indicates only whether to contract or expand supply of educated manpower and not by how much.

However the essential conclusion is that labour markets seem to be more flexible and, within wide limits, able to absorb without much difficulty very different distributions of graduates by educational background. This weakens the case for manpower planning by authorities and strengthens the case for flexible organisation of higher education based on student demand. An information system for students should be organised providing labour market and other relevant information for rational decision-making on the part of students themselves.

2. Final review of the issues in the financing of higher education

Any system of financing higher education must be judged in terms of efficiency, equity and equality. The chosen mixture between public and private finance will be determined by judgements about the relative magnitudes of the external and private benefits of higher education, government policy on distribution of income between social groups or regions, and the distribution of access to higher education. An efficient method of finance is one which ensures adequate investment in education, provides incentives for the efficient allocation of resources within institutions, and does not prove difficult or expensive to administer. A system of finance will be judged equalising if it ensures that poor but able students are not prevented from entering universities by lack of finance, and equitable if it also reflects the distribution of benefits in the community.

Unfortunately these criteria may conflict. Some believe that the market mechanism ensures the most efficient allocation of resources, by promoting competition. On the other hand such a scheme could result in unequal access for rich and poor and socially selective institutions, are, as we have shown, not necessarily more efficient. One reason why there is disagreement about methods of financing education is that there is a lack of evidence about the effects of alternative methods, mainly because of the impossibility of 'holding other factors constant'; yet another reason is the variety of goals and obscurity of objectives.

This situation can only be improved if governments examine more carefully the objectives of different policies, and collect more evidence on the effects of different methods of finance. Most debates on finance are characterised by assertions about the likely effects of a change in policy and are unsupported by evidence, because the evidence does not exist. For example, a number of writers suggest that a mixture of public and private finance will increase the resources available for education.(1) This is because they assume that if education is wholly publicly financed the total volume of expenditure will be determined by the preferences of the median voter. While this may be a realistic assumption for the financing of elementary and secondary schools in the United States, it hardly reflects the allocation process for higher education in any country where decisions are taken on either state or federal levels.

It can be argued that the large rise in educational expenditure in the last decade has been the result of governments forcing the taxpayer, including the childless, to pay more towards education than they would voluntarily have spent in a market system. In fact very simple public finance models show that when groups differ in the intensity of their preferences for public goods one should expect the extreme positions to win and the median voter to be left out in the cold. In other words, the 'education lobby' may have succeeded in pushing the level of public expenditure above the preferences of the median voter or taxpayer. It is therefore not obvious that a mixture of public and private finance would necessarily result in greater expenditure than under a purely public or private system. Certainly if we look at Japan and the United States where public and private institutions of higher education exist side by side, we find that in Japan the private sector has expanded more rapidly, while in the United States it has been the public sector.

Nevertheless, it is possible to consider the possible effects of the many different changes in finance policy which have been proposed in OECD countries recently, such as an increase in fees, an increase in general institutional grants, a graduate tax, a 'study salary' for students, more selective aid for students, less selective aid for students, loans for students, grants for students, (it is no accident that this list is full of contradictory proposals). Any change of policy must be evaluated in terms of specific effects, for example, what will be the effect on:

(a) the overall demand for education by students and their families;
(b) the distribution of enrolment by social class, race or sex, and by type of institution or subject;
(c) the distribution of the benefits to society;
(d) the size and diversity of institutions;
(e) the methods of control of institutions;
(f) incentives for efficient allocation of resources;

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(1) See M.V. Pauly and W.C. Stubblebine, op.cit.

(g) the career choices of graduates;
(h) the level of graduate earnings;
(i) the distribution of income between individuals and regions;
(j) the balance between local or state and central governments.

CONCLUSION

With regard to the future development of higher education we have said that if more liberal student maintenance policies are introduced, an extensive numerus clausus system would be necessary if the increase of total resources available to finance higher education institutions is going to be slower in the future than in the past. This might have negative effects on major social objectives, such as equality of educational opportunity. It is further possible that subsidies will become more important as a policy instrument for equalising educational opportunity as the access to secondary schooling becomes more general and the process of selection is gradually transferred to higher education. A development in the opposite direction would be a more extensive use of tuition and other private financing schemes than today, to ease the overall burden of general taxation.

It has also been said that the choice of methods of financing of institutions and student maintenance policy cannot be determined on professional grounds alone; it is a matter of political choice. Whether it be the financing of institutions or student maintenance policy, the question is how much should be borne by the public and how much by the individual student and his family. The chosen mixture will be determined by judgements about the relative magnitude of the external and private benefits of higher education, government policy on the distribution of income between social groups or regions, and the distribution of access to higher education.

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